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Commandant's NOTE

MAJOR GENERAL CARMEN J. CAVEZZA, Chief of Infantry

MARKSMANSHIP: A NEW FOCUS

The Infantry's primary role on the modern battlefield remains to close with and destroy the enemy. The awesome lethality of modern weapon systems resulting from advances in the potential combat power of current and future weapon systems and counter-systems may begin to overshadow the close combat role of the Infantryman. We must remain cognizant of the relative combat power wielded by the Infantryman, however, and its superior effects in close combat operations.

Operation JUST CAUSE and our Army's current efforts in Operation DESERT SHIELD clearly demonstrate the rapid projection of the Infantry's potential combat power in reaction to hostilities throughout the world. The skills that have sustained Infantrymen on the battlefield for more than 200 years—marksmanship, use of terrain, the estimate process, drills—remain the foundation of an Infantryman's fighting ability. Regardless of the sophistication of his weapon systems, the Infantryman will always maintain an individual weapon designed for close combat with the enemy.

The nature of an Infantryman's profession therefore requires of him, among other things, physical prowess and the ability to produce accurate fire with small arms. Unfortunately, we tend to emphasize the former more than we do the latter.

Marksmanship is a skill in which Infantrymen should take pride. Recently, the commander of the U.S. Army Training and Doctrine Command, General John Foss, observed that we are the only major army in the world that has the same rifle marksmanship standards for Infantrymen that it

has for cooks. He also pointed out that our Infantry squads and platoons will often live or die on the basis of their ability to place accurate fire on the enemy. In brief, he was saying that it is time that the Infantry moved to precision marksmanship.

This approach requires command emphasis and more frequent marksmanship training at all levels. The Infantry School has been developing new marksmanship proficiency requirements and standards for Infantrymen.

Currently, the approved TRADOC program of instruction (POI) contains 70 hours of basic rifle marksmanship (BRM) taught during basic combat training and Infantry common-core One Station Unit Training (OSUT). For each segment of training, there are standards, or "gates," that the soldiers must achieve before they are permitted to fire the Army qualification table to standard. A few weeks later, the soldiers in OSUT who have military occupational specialty (MOS) 11B must take an additional 24 hours of advanced rifle marksmanship (ARM). This program includes a second qualification table on which the standard is 18 hits out of 50, using moving and stationary targets.

Although our Infantry OSUT soldiers are now demonstrating rifle proficiency well above the minimum requirements, we believe that Infantrymen should be able to meet higher standards. To make this happen, the 29th Infantry Regiment is developing a new Infantry marksmanship program and OSUT POI. Both are scheduled for implementation

during Fiscal Year 1991. The first phase of this three-phase test is complete, and the results are being incorporated, on a test basis, into a revised 13-day OSUT marksmanship program. Test firing will be completed in November 1990.

The program is designed to produce an Infantryman who is more capable of delivering accurate fire at extended ranges, under NBC and night conditions, against fixed and moving targets. Its emphasis is on graduating OSUT soldiers who have a solid foundation in the basics of marksmanship and who are more capable of retaining their marksmanship skills after they graduate. The draft POI incorporates more NBC and night firing, includes two days of precision fire at distances out to 550 meters, and examines the utility of device-based training using the Weaponeer and the multipurpose arcade combat simulator (MACS). These training devices have been modified to include combat record fire and advanced combat record fire scenarios that can help determine and sustain a firer's skill level.

Since this is an emerging process, the exact nature of the course of fire requirements and qualifications and performance standards are still being refined. It is already clear, however, that our Infantry units will have to be far better prepared and devote more time to marksmanship training than they are currently doing if they are to meet and sustain the planned higher proficiency levels in our Infantry soldiers.

In addition to developing an improved Infantry

marksmanship program, the Infantry School is working with TRADOC to field an M16A2 rifle that is equipped with an optical sight for riflemen in selected operational units. The scope should increase a firer's probability of hit, particularly when he engages targets at longer ranges and under low light conditions. Additionally, both the Weaponeer and MACS training devices will be equipped with an alternate rifle fitted with a power scope to facilitate marksmanship training with optics. Accordingly, our new marksmanship program and its standards may also be revised to reflect this increased capability.

Infantry commanders must recognize that the demand for weapon proficiency and basic marksmanship in our Infantrymen is as great today as it has ever been and that these are perishable skills that require continuous sustainment. Marksmanship training, therefore, must be emphasized at all levels, and it must be challenging. Just as any professional achieves success in his field mastering the tools of his trade, the Infantryman achieves success in battle by hitting what he shoots at, not occasionally, but every time. This goal is attainable, if the program is supported by the chain of command.

Regardless of the intensity of the conflict, the Infantryman is the ultimate weapon. We at the Infantry School and you Infantry leaders in the field must ensure that we have done our part to produce a fully qualified professional Infantryman who can perform his mission under any conditions.



INFANTRY LETTERS



CORRECTION TO "DESERT NAVIGATION"

In editing the articles that we used in our July-August 1990 issue, we made a rather serious mistake in the one by Major Richard G. Reynolds, titled "Desert Navigation" (pages 18-23).

In the fifth paragraph of the article (page 18), we said that the Sahara "measures 3,200 miles from north to south." It should have read that the Sahara "is 3,200 miles wide and between 1,000 and 1,200 miles from north to south."

We regret the error.

INFANTRY EDITORS

TOP GUN

The article "Infantry's Top Gun," by Colonel David H. Hackworth (INFANTRY, July-August 1990, pages 10-12) provided an excellent analysis of a problem in the Army and a proposed solution. Getting experienced company commanders by making this a major's position would go a long way toward improving our Army.

I would like to add, though, that although any command is valuable, if we want an officer to get experience in a particular field (or branch), it is equally critical what type of command he has. One of the great disservices to our current system and officer corps is the lie that "a command is a command." This may satisfy the personnel managers, but it does nothing to ensure that people really know what they should about their branch.

For an infantryman, there is only one job that teaches a captain what he should know—command of a *line* company. Our system should demand this before a captain can be promoted to major and certainly before he commands a line battalion. All of the other commands (head-

quarters companies, combat support companies, training companies, and the like) are great for second and third commands, but they can never provide the environment an officer needs to learn the heart of his trade.

If we truly want to have professionals running our Army, we need to allow them the training opportunities to develop properly. Our current system serves the bureaucracy and personnel system, but the needs of the individual (and by extension, the real needs of the system) are met only on a hit or miss basis. We can do better than this and should systematize what is right, not leave it to luck to decide who should get the line companies and who should not.

GREGORY T. BANNER
CPT, Special Forces

OLD PROFESSIONALS ARE GONE

As a professional NCO who has been kicking around the Army since 1961, I would like to congratulate Colonel David H. Hackworth on his article "Infantry's Top Gun" (INFANTRY, July-August 1990, pages 10-12).

When I first joined the Army and went into combat, I was lucky enough to serve under quite a few of the old, professional company grade officers Colonel Hackworth describes. As he says, though, by the end of the 1960s these professionals were all gone.

The officer career system that has been in effect for the past 20 years or so has had a debilitating effect on the leadership at company level. The thought of having to go into combat again with many of the company commanders I have served under during the latter part of my career is pretty terrifying.

LEIGH F. WADE
SFC, Active Guard Reserve
Paynesville, Minnesota

BRITISH, U.S. SYSTEMS DIFFERENT

Colonel David H. Hackworth's article "Infantry's Top Gun" (INFANTRY, July-August 1990, pages 10-12) once again raises the question of whether the Army should require more company level experience of its company commanders. The obvious answer is Yes. But we must also look at the feasibility of such a plan in an Army structured as ours is.

Colonel Hackworth touts the virtues of the British system, which provides multiple company commands to officers with 10 to 15 years of company level experience, and its success is unquestionable. But the system that allows such a structure is not as similar to our own as one might think.

The British Army is centered on the cohesion of its individual units. It is also smaller and not nearly as fluid as the U.S. Army. Tours for its average infantrymen are five to eight years, as opposed to one to five years in our Army. This develops a much stronger bond among its soldiers,

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and the commander of such a stabilized unit undoubtedly has an easier time being a successful commander. One of the biggest problems a U.S. commander faces is that during a command tour of 12 to 24 months, simply because of personnel turnover, he will actually lead two or three different company-sized units.

In addition, since World War II the British Army has been a careerist force, for both officers and enlisted men. The mind-set of the British soldiers is quite different. This is not due entirely to longer enlistment requirements but also to a system that does not recruit soldiers by promising that the Army will be a stepping stone to a great civilian life. Each of their soldiers is assigned to a unit that will be his home for many years. This basic difference tends to shed a clearer light on why British company commanders appear to be more successful as individuals. Perhaps the unit an officer commands is just as important as the way he commands it.

To give company commanders this type of experience, the U.S. Army would have to be almost completely restructured. At present, an officer with more than a decade of company-level experience would not command a company for long. He would be moved to a level where his experience could benefit more than just one company. In our Army, this is a necessity because of personnel turnover. To allow an officer even two opportunities at company command, as a rule, would not equate to the British system unless our forces became much more stabilized.

Finally, we have to look at the availability of company command tours in terms of numbers. Company-level officers outnumber command positions by more than three to one. With company command being almost a doctrinal prerequisite for staff advancement, not to mention career advancement, each command-eligible officer strives for a chance at this job. To extend tenure or provide multiple commands to one officer would deny others the opportunity.

Certainly, there is no substitute for experience. More than one opportunity to command a company would vastly improve any leader. But the only way to do

this in our Army, with its present strength and its instability, would be to reduce the number of officers available to fill these command positions. One way of doing this would be to select some officers to be staff-tracked. This would also lessen the need to "ticket-punch" captains through one command tour in order to maintain fully manned staff positions.

Perhaps, as the Army reduces in size over the coming decades, it will become more practical to slow down the officer progression process to allow more time at company level for all officers.

THOMAS J. KARDOS

1LT, Infantry

101st Airborne Division

LEADERSHIP AND PT

In his article "Leadership and PT" (INFANTRY, July-August 1990, pages 34-36), Lieutenant Colonel Harry D. Stumpf made some good points on leadership. Unfortunately, though, he has missed the point of PT (physical training).

I agree that PT is a unit activity and that commanders should ensure maximum participation and enforce a strict uniform policy. But traditional unit PT consisting of calisthenics followed by a run in formation to a cadence—the regimented, disciplined aspect of PT, as Colonel Stumpf puts it—is not effective. The Army has realized this and through master fitness trainers is trying to change PT programs to challenge every soldier at his individual level of fitness.

Our soldiers need to be physically able to carry their load and endure the hardships of combat, and we owe it to them to prepare them as best we can. To say that soldiers who want to run harder or farther can run after duty hours is wishful but foolish thinking. When do soldiers have a chance or, after a full day of training, where do they find the energy and motivation?

You can run a challenging PT program and still build small unit cohesion. Make PT a unit activity. Let the NCOs run the program with guidance from the master fitness trainers in the company. Have the

officers participate and have everyone in the same uniform. Doing free body exercises (as many pushups or situps as they can in 60 seconds) instead of pushups to cadence doesn't reduce the unit cohesion that can be built, nor does it stifle the exercise of leadership. Running in ability groups still allows unit cohesion while it stresses each soldier at his individual level of fitness. Once a week or every other week, you can still conduct a company or battalion run with guidon for esprit de corps. But don't confuse this with physical training.

We need to get rid of the old mentality that PT should be done by the numbers. Leaders can still lead by example, and cohesion can still be built while the soldiers become fit to fight. After all, how good is a team that isn't fit enough to play the game?

WILLIAM J. MARTINEZ

MAJ, Infantry

U.S. Exchange Tactics Instructor
Australian Infantry Center

ROTC ALUMNI ASSOCIATION

The Army ROTC Department at Worcester Polytechnic Institute is establishing an alumni association. The association will seek to support the cadets of the Institute and affiliated schools as well as help alumni maintain contact with the battalion and their classmates.

Alumni of WPI's ROTC program are invited to call me or Major Sayre at (508) 752-7209 or telefax (508) 831-5483, or send their names, addresses, and telephone numbers to Army ROTC, Worcester Polytechnic Institute, 100 Institute Road, Worcester, MA 01609.

CLARENCE PLANT

SGM

Battalion Sergeant Major

ARMY MILITARY HISTORY WRITING CONTEST

Each year, the U.S. Army Center of Military History conducts the Army Military History Writing Contest. The 1990

contest will be held in accordance with the following rules:

Participation is limited to students who attended officer advanced courses and the Sergeants Major Academy at any time during calendar year 1990.

Entries must be previously unpublished manuscripts, 2,000 to 3,000 words (seven to ten pages), typed, double-spaced, in two copies. Documentation is required, but footnotes and endnotes are not included in the required length.

Essays should develop a limited historical theme related to the Army. Suggested topics are:

- World War II or Korean War battles and campaigns.
- The black experience during the Civil War, World War II, Korea, or Vietnam.
- Leadership and Training.
- Mexican border operations, Indian campaigns.
- Unit cohesion and stress in combat.
- Fighting outnumbered and winning.
- Logistics.

Entries must be mailed to the Center of Military History, ATTN: DAMH-FI (Writing Contest), Washington, DC 20314-0200, and must be postmarked by midnight, 31 December 1990.

The papers will be judged by a panel of military historians on the basis of their originality, historical accuracy, sources and documentation, style, and rhetoric, and their usefulness to today's Army leaders.

For more information, anyone who is interested may call me at AUTOVON 335-2905; commercial (202) 475-2905.

BILLY A. ARTHUR
Chief, Military History
Education Activity
Center of Military History

SMOKE/OBSCURANTS SYMPOSIUM

The U.S. Army Chemical Research, Development, and Engineering Center at Aberdeen, Maryland, is sponsoring the Smoke/Obscurants Symposium XV. The symposium will be held 16-18 April 1991 at the Kossiakoff Conference and Education Center, Johns Hopkins University, Laurel, Maryland.

The theme is "Measures/Countermeasures." Topics to be presented are smoke systems and materiel, smoke effects on electromagnetic systems, natural obscurants, operational uses of smoke and obscurants, effects of smoke and obscurants on health or the environment, and the effects of obscuration on sensors overhead.

Members of the Department of Defense, industry, academia, and allied nations are invited to submit papers on these topics; they may include classified material up to and including Secret level. The deadline for abstracts is 25 January 1991.

Further information is available from Judy Cole, Symposium Coordinator, telephone (804) 865-7604, telefax (804) 865-8721; or Walter Klimek, Symposium Chairman, telephone (301) 671-2260, AUTOVON 584-2260, or telefax (301) 671-2968.

JEANNE HAWTIN
Meetings Director

DOD TUITION-FREE MEDICAL SCHOOL

The Uniformed Services University of the Health Sciences in Bethesda, Maryland, was established by an act of Congress in 1972. This fully accredited joint-service school is designed to provide the Department of Defense with a cadre of

career medical officers for the Army, the Navy, the Air Force, and the U.S. Public Health Service.

The medical students attending the F. Edward Hebert School of Medicine are commissioned as second lieutenants or ensigns on active duty reserve status. They draw full military pay (approximately \$23,000 a year) and benefits while in school. There is no tuition, and all books and equipment are provided at no charge.

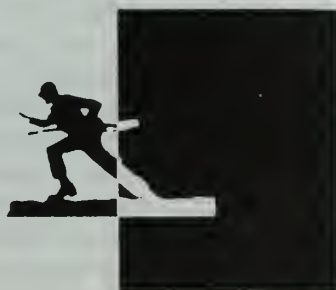
Students study the traditional civilian medical school curriculum, plus courses of direct military medical relevance. At graduation, they receive M.D. degrees and are promoted to captain or lieutenant and must serve seven years to pay back their education. The time spent in graduate medical education, such as internships or residencies, does not count toward this obligation.

Both civilians and military personnel with college degrees may apply for the four-year medical program. Civilian applicants may be no older than 27 when they enter the school. Applicants with military service may exceed the age limit by up to six years—to age 33—depending upon the amount of their prior service time. All applicants must meet the physical and personal qualifications for commissions in the uniformed services, as well as certain academic requirements.

The university also has a graduate program that leads to advanced degrees in the basic medical sciences.

More information on the Hebert School of Medicine is available from Office of Admissions, ATTN: PAC, Uniformed Services University, 4301 Jones Bridge Road, Bethesda, MD 20814-4799; telephone (202) 295-3101.

PATRICIA CAMPBELL
Director of Public Affairs



INFANTRY NEWS



THREE ITEMS OF CLOTHING and equipment for soldiers are scheduled for fielding soon, according to the Infantry School's Directorate of Combat Developments. The School is the TRADOC proponent for such items.

Cold/Wet Boot. A new cold/wet boot has been identified after testing at Dahlonga, Georgia, by the Ranger Training Brigade and in Alaska by the 6th Infantry Division. The stated requirements were for a waterproof march boot that would provide protection from the cold in temperatures ranging from -10° to +30° Fahrenheit.

The selection process began in 1989 with more than 50 candidate boots, all state-of-the-art, high-tech footwear. The first round of testing narrowed the field to eight, then to the best three, with the Matterhorn and Rocky boots selected for a 60,000-item interim buy and fielding this winter.

The priority of issue will be first to soldiers who fight on their feet, then to vehicle crews and all others.

Cold/Wet Glove. Since 1988, the Army has evaluated a number of five-finger gloves from around the world. The infantry's requirements for a cold/wet five-finger glove, however, are more difficult to meet than the requirements for a ski glove. For example, individual soldier tasks require gloves that give cold/wet protection in the temperature range of +40° to 0° Fahrenheit and allows a soldier the dexterity he needs. In addition, the gloves must be more durable than the current black light duty work glove.

This winter, 12,000 improved cold/wet gloves will go to the field for an expanded field test, which should dispel any doubts about this improved glove.

Lightweight Flashlight. The School has initiated efforts to identify a non-developmental lightweight, scaled down flashlight to replace the current angle-

head flashlight for some soldiers. A total of 1,400 flashlights will go to the field for an expanded test in the spring of 1991.

Three different prototypes are being evaluated to determine which type of flashlight matches the needs of the dismounted soldier, the vehicle crewman, and all others. One, some, or all of them may be selected. The new items will be procured and fielded next year. The basis of issue will be determined by the individual soldier's job or mission.

The three leading candidates are the Mini-Mag, the Air Force crew light, and a smaller version of the Army's current angle-head light.

ENGINEER SUPPORT for the mobility of light forces includes detecting all types of mines and minefields in addition to breaching obstacles and breaching walls in built-up areas. New technology is being introduced that will greatly improve the mobility of light forces and enable them to counter obstacles on the future AirLand Battlefield. The first of these was recently fielded, and the others are still being developed:

M58 Mine Clearing Line Charge (MICLIC). The MICLIC is a rocket-projected explosive line charge, 350 feet long, that contains five pounds of composition C-4 explosives per linear foot. It will breach a lane eight meters wide by 100 meters long through a minefield of antitank (AT) and antipersonnel (AP) mines and wire. The system is mounted on the M353 3½-ton or the M200A1 2½-ton trailer chassis.

Small Arms Projected Line Charge (SAPLIC). This charge, developed under the soldier enhancement program, will breach a lane at least six-tenths of a meter wide by 50 meters long through an AP minefield. It will be lightweight and manportable and is projected for

fielding by 1993.

Antipersonnel Obstacle Breaching System (APOBS). This is a Marine Corps item that the Army will procure after development. It consists of two sections weighing 55 pounds each, and will breach a lane six-tenths of a meter wide by 45 meters long through obstacles of AP mines and concertina wire. It is scheduled to replace the M1A1 bangalore torpedo in Fiscal Year 1994.

AN/PSS-12 Metallic Hand-Held Mine Detector. This battery operated, non-developmental system weighs eight pounds and can be operated by one man in a walking, standing, or prone position. Scheduled for fielding by August 1992, it will replace the current AN/PSS-11 detector.

Standoff Minefield Detection System (STAMIDS). STAMIDS uses an infrared line scanner, infrared and laser sensors, or a combination of the two plus other devices that will allow the standoff detection of minefields. It is projected that the system will be a payload on an unmanned aerial vehicle (UAV) and that it will be used for detecting minefields during intelligence seeking missions. It is projected for fielding in Fiscal Year 1995.

Light Assault Bridge (LAB). LAB will give the light forces a lightweight, mobile, trailer-mounted system that can support them with a rapidly emplaced assault bridge. It is a military load class 30 double-fold scissor bridge with a 23-meter span capability. It is currently undergoing early user test and evaluation at Fort Leonard Wood. It will be a corps asset used in support of light forces and is projected for fielding in the first quarter of Fiscal Year 1993.

THE NEW AN/PAQ-4A INFRARED aiming light will enable soldiers wearing night vision goggles (NVGs) to fire their

rifles more accurately at night.

The light, intended primarily for use with the M16A1 and the M16A2 rifles, is mounted and zeroed on a rifle and used to send out invisible pulsing light beams that can be seen only with the NVGs.

The AN/PAQ-4A has several distinct advantages over the AN/PAG-4A, which it replaces. It weighs about half as much, has a longer range, can operate on two BA3058/U (AA) batteries, and can be attached to the M16A2 rifle.

In addition to the M16 rifles, the AN/PAQ-4A is also intended for use with the M249 and M60 machineguns, the M67 recoilless rifle, and the M72 rocket launcher, and it can be used with all current NVGs.

The device is now in production and has been fielded to units in Europe. It will be fielded to special operations forces and Ranger units during Fiscal Year 1991 and to all other infantry units during FY

1992. The basis of issue will be the same as for the AN/PAQ-4—three per light, airborne, air assault, and Ranger rifle squad, and two per BFV and M113 rifle squad.

THE ARMY CORRESPONDENCE Course Program (ACCP) at the Infantry School now includes several new subcourses. Some of these will support the Reserve Component Infantry Officer Basic and Advanced Courses.

Other new courses are the Mortar Ballistic Computer, Mobility and Company/Battalion Countermobility Operations, Infantry Scout Platoon, and Threat Recognition subcourses. Bradley commander offense and defense subcourses have been in the field for several months.

The ACCP Branch at the School is also involved in a pilot program aimed at integrating nonresident instruction into

the School's resident instruction. To get advanced training in certain cognitive areas, students will take the ACCP subcourses before they enter resident training. Courses scheduled for integration at the Infantry School are the TOW Trainer Course and the Long Range Surveillance Leader Course.

Further information is available from the ACCP Branch, AUTOVON 835-7151, or commercial (404) 545-7151.

AN OPTICAL SIGHT is being considered for use on a modified M16A2 rifle and the M249 machinegun. A day optical sight mounted on a rifle extends a soldier's ability to acquire and engage targets at longer ranges. It also extends a rifleman's operational day—he can shoot accurately in dawn and dusk conditions when his opponent with iron sights is significantly handicapped. The use of optics gives the user more confidence in his weapon and in his ability to hit targets.

The TEXCOM Infantry Board conducted a concept evaluation program test earlier this year to provide data for a procurement decision to field such a sight.

This test assessed the effectiveness and suitability of three off-the-shelf militarized optical sights for use with the two weapons, and all of them either met or exceeded the capabilities of the iron sights in all areas. The optics performed significantly better than the iron sights during day fire at short ranges (50 to 300 meters) and at known distances (400 to 600 meters), and they performed as well as the iron sights during day fire at long ranges (300 to 600 meters). The test soldiers preferred the optical sights over the iron sights.

On the basis of these findings, a six-month field evaluation is tentatively scheduled to begin in August 1991. The field evaluation will equip the rifle platoons of three infantry battalions with modified weapons, modified training aids, and a new POI for marksmanship instruction and standards. The goal is to outfit all members of a rifle squad except the grenadiers with the improved weapons.

A two-phase program is now in pro-



THE SOLDIER INTEGRATED Protective Ensemble (SIPE) is being proposed by the U.S. Army Natick Research, Development, and Engineering Center. The objective is to develop a modular, head-to-toe individual fighting system that will increase the combat effectiveness of soldiers and protect them against battlefield hazards.

The ensemble will work as a system to protect a soldier against ballistic, chemical-biological, flame-thermal, surveillance, directed energy, acoustic, and environmental hazards. In addition, it will integrate improved communications and

weapon interface capabilities.

The ensemble's subsystems include advanced clothing, integrated headgear, and microclimate conditioning. This modular approach will allow commanders to tailor the ensemble to their particular mission needs. Although the emphasis of this program is on the infantry soldier, other major Army users and other services as well are also involved.

The program began in Fiscal Year 1990 and a field operational demonstration is scheduled for late Fiscal Year 1992.

gress to field an optic on the M249 by September 1992 and on the modified M16A2 by December 1992.

THE NATIONAL INFANTRY MUSEUM recently prepared a major exhibit to honor the 1st Cavalry Division during its recent reunion in the Fort Benning/Columbus area. The exhibit included a number of large photographs of division members in action in World War II, Korea, and Vietnam, as well as equipment, uniforms, and mementos used by members and their opponents. There was even a memento of Maggie the Mule, the division mascot, who was killed in action in Vietnam.

The 1st Cavalry Division, nicknamed "The First Team," was activated 13 September 1921 at Fort Bliss, Texas, but its history and traditions date back to the time when the United States was expanding westward across the Great Plains. Its original mission was to patrol the land along the Mexican border while at the same time training for, and maintaining, combat readiness.

The division saw service during World War II, and later during both the Korean and Vietnam wars. Although the division kept its cavalry designation for historical reasons, it fought in each of these wars as an infantry division. Elements of the division recently deployed to participate in Operation DESERT SHIELD in Saudi Arabia.

The museum also has on display in its World War II section a plaque, donated by a member, that honors the men of the 411th Infantry Regiment. This regiment served with the 103d Infantry Division in Europe.

The museum is purchasing a video tape series titled "The Different Drummer," which details the important role black soldiers have played in the U.S. armed forces from colonial times to the Vietnam War. This excellent educational series will be shown to visitors in the museum's auditorium and will also be used in black history programs.

The museum has lent its support to an effort to begin a museum at Camp Blanding, Florida, a World War II training camp that is now used for Flori-

da National Guard training. In addition, the museum's director was involved in planning the renovation of Fort Benning's historic Building 35, the old Infantry School headquarters. Assisted by the museum's collection of old photographs, the Georgia Historic Preservation Office wrote and approved the contract for the renovation so that the building's integrity and historic character would be preserved. The building is being prepared for use by the School of the Americas.

The National Infantry Museum Society, formed at Fort Benning a number of years ago to assist the museum with financial and volunteer support, is open to anyone who is interested in joining. The cost is \$2.00 for a one-year membership or \$10.00 for a lifetime membership.

Additional information about the museum and the society is available from the Director, National Infantry Museum, Fort Benning, GA 31905-5273: AUTOVON 835-2958 or commercial (404) 545-2958.

THE M-17 LIGHTWEIGHT Decontaminating System is now being issued to schools of the Army's Training and Doctrine Command (TRADOC).

The system—managed through the U.S. Army Chemical Research, Development, and Engineering Center—resulted from improvements to a non-developmental item produced in Norway. Called the SANATOR (a Norwegian name that has stuck), it consists of three main parts—a collapsible 1,580-gallon water tank, a 360-pound pump-heater assembly, and a 150-pound accessory kit containing spray wands, showers, and suction hoses.

Essentially, it works like this: The rubberized nylon water tank is filled, one end of the suction hose is attached to the pump-heater assembly, and the other end is placed in the tank. The spray wands with their hoses are also connected to the pump-heater, which pumps water from the tank, heats it, and delivers it as steam to the wands. The pump can also draw water directly from a lake or stream.

For hasty decontamination, the sys-

tem uses hot water and steam to rinse chemical agents off vehicles and equipment in the field. For deliberate decontamination operations, it uses a general purpose detergent.

As an added dimension, the temperature of the water can be regulated to provide hot showers for up to 12 soldiers at a time, and the system comes with the necessary hardware.

The M-17 is an improved version of the SANATOR, which was first procured through an Air Force contract and fielded by the Army in 1986-1989. Each of the earlier versions will be retrofitted to the new design and re-issued.

Over the next five years or so, these systems are scheduled to be fielded first to overseas commands and then to units in the continental United States.

THE LINE-OF-SIGHT ANTITANK (LOSAT) weapon system is being developed as a highly mobile, adverse weather, day and night, direct fire, long range replacement for the improved TOW vehicle (ITV).

LOSAT will consist of a missile and a weapon module mounted on a "stretched" Bradley M2A2 chassis. The Army's missile of choice is the kinetic energy missile, which will be lethal against any known or projected armor in the world, but other missile technologies are also being examined.

The system is being designed for a crew of three and will carry a total of 20 missiles—four ready to fire and 16 stowed. It will be organic to the anti-armor company of a heavy maneuver battalion.

Missile firing tests are being conducted, and the concept will be evaluated for full-scale development in May 1991, with fielding projected for Fiscal Year 1997.

THE INFANTRY OCS ALUMNI Association has been busy since April 1990, and the president and his board of directors are moving forward with an ambitious program to increase awareness of the Association and its activities.

One of these activities is the Jess Walls

Distinguished Officer Candidate Award. The award consists of an Army saber, symbolic of a leadership position in an officer candidate class, an engraved plaque, and a complimentary life membership in the Association. Recent winners of the award are Second Lieutenant Raymond L. Strickland, Class 3-90; Second Lieutenant Anell Berry, Class 4-90; and Second Lieutenant Daniel A. Talbot, Class 5-90.

Another major activity is planning for the celebration of the 50th Anniversary of the OCS program, which will be held 13-15 February 1991. This joint activity between the 3d Battalion (OCS), 11th Infantry, and the Alumni Association, will be held in conjunction with the Patterson Award ceremony and the OCS Hall of Fame induction.

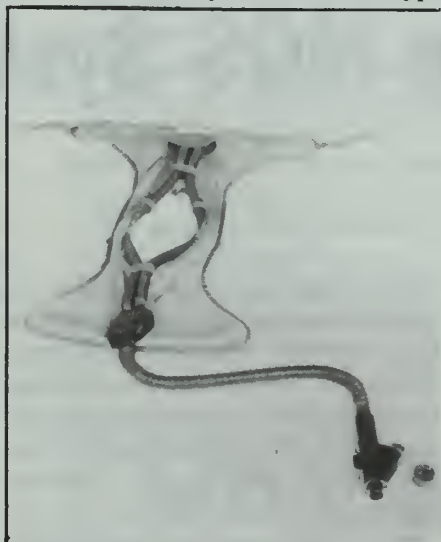
Regular membership in the Alumni Association is open to graduates of the Officer Candidate Schools at Fort Benning, Georgia, and Fort Riley, Kansas, regardless of branch. Associate membership is open to graduates of other OCS programs and other persons who have made and will continue to make significant contributions to the OCS program. Annual dues are \$10.

Anyone who is interested in joining may write to Secretary, The Infantry OCS Alumni Association, P.O. Box 2192, Fort Benning, GA 31905.

MICROCLIMATE COOLING SYSTEMS, both air and liquid, are being de-

veloped by the U.S. Army Natick Research, Development, and Engineering Center for soldiers inside combat vehicles and aircraft. In extremely hot, humid interior conditions, standard clothing, even in combination with a vehicle's cooling system, often fails to keep body temperatures within acceptable limits. This not only affects the soldiers' performance, it can also produce casualties.

An air-cooled system has been type



classified with the M1A1 tank and is now standard issue with the vehicle. It uses a specially constructed lightweight vest that is connected by a hollow umbilical cord to a source of cooled, conditioned air from the tank's turbine engines. It is worn over a soldier's underclothing but under all his outer garments and equipment. The cool air flows around the soldier's torso, removes excess body heat

and sweat, and keeps his temperature within acceptable limits.

An improved version of the air vest is now being tested that can be used in other Army vehicles and aircraft. (For compatibility with aircraft, the cord has been shifted from the front to the side.)

Soldiers wearing these vests can endure higher temperatures and can work longer without a reduction in performance. Maintaining a lower body temperature also reduces sweating and with it the danger of dehydration.

THE ARMY RESERVE PERSONNEL Center (ARPERCEN) in St. Louis receives a truckload of mail each day, and mail that arrives without office symbols can be delayed or lost.

Fortunately, ARPERCEN has a user-friendly guide available that will help its customers get their paperwork where it belongs.

The ARPERCEN Quick Reference Action Guide is keyed to the more than 200 most common forms that ARPERCEN customers use. It identifies each form by its number, proponent agency, and name, and then provides the office symbol at ARPERCEN to which it should be sent.

The guide is free for the asking to any soldier who requests it in writing and sends a return mailing label. The address is Commander, ARPERCEN, ATTN: DARP-IMG-A, St. Louis, MO 63132-5200.



PROFESSIONAL FORUM



The MQS System

EDITOR'S NOTE: This article was prepared by the Center for Army Leadership, U.S. Army Command and General Staff College, Fort Leavenworth, Kansas.

The Military Qualification Standards (MQS) system is designed to identify common task and branch training requirements for officers. It provides a framework that school commandants, unit commanders, and individual officers can use for common and branch specific officer training, education, and professional development.

MQS I covers precommissioning training; MQS II covers company grade officer training; and MQS III applies to field grade officer training.

The MQS system has two components—a military task and knowledge component and a professional military education component. The military task and knowledge component provides the critical tasks on which officers must train, while the professional military education component focuses on improving the officers' cognitive skills.

The MQS system identifies the critical battle-focused tasks, skills, and knowledge that officers must master at each stage of their careers. It establishes the responsibilities and standards for their professional development, training, and education.

Leader development results from the progressive and sequential education,

training, and experience an officer receives throughout his career. It starts in the precommissioning phases of training, continues through commissioning, branch education, and operational assignments, and ends only when an officer has completed his military service. This process depends for its success on institutional training, operational assignments, and self-development, all of which must work together if the process is to succeed.

School commandants (and other proponents) are most directly involved with institutional training. This includes, for example, the training that company grade officers receive in the officer basic and advanced courses and the Combined Arms and Services Staff School (CAS³). Unit commanders, on the other hand, are most directly involved with operational assignments.

LINK

The MQS system provides the link between institutional training and operational assignments, and helps commandants construct their unit training plans and design their junior officer development programs to complement the training of their unit's METL (mission essential task list) tasks.

Individual officers are most directly involved with self-development, which includes professional reading and study. They are also ultimately responsible for

their development as leaders.

Of particular interest to company grade officers (Active Army, Army Reserve, and Army National Guard) is the implementation of the revised MQS II system. Its goal is to prepare company grade officers to accomplish their wartime tasks. It is also intended to provide the basis for their promotion to major, for their schooling at the command and staff college level, and for their advancement to positions of greater responsibility.

It serves as a bridge over which officers can progress through the first and second milestones of their careers (now called passage points). The requirements that make up the passage points include the completion of the appropriate branch schools and developmental assignments, demonstrated proficiency on common and branch tasks, and completion of specified portions of the Foundation Reading Program.

The first passage point occurs when an officer enters his branch advanced course. The second occurs when he completes his company grade career and either enters a resident command and staff course or enrolls in the non-resident Command and General Staff College course.

The military task and knowledge component of MQS II is organized into common task areas that are essential for all company grade officers and branch-specific task areas that apply only to the officers in a particular branch. The profes-

sional military education component of MQS II consists of a reading program and, for selected officers, advanced civil schooling as well.

MQS gives commanders the flexibility they need to establish leader development programs that complement their METL-based unit training programs. The METLs and warfighting must be the focus of unit leader development programs. Commanders must therefore tailor both their MQS task training programs and their professional reading programs to support their METL-based unit training plans. (MQS does not require commanders to train tasks that do not support their unit METLs.)

The MQS II implementation plan will include the distribution of both a common manual and a branch manual. The

MQS II common manual will be distributed in December 1990, and the MQS II branch manuals between January and March 1991. Each lieutenant and captain will receive personal copies of both manuals through his unit's pinpoint distribution system.

The U.S. Army Publications Distribution Center will ship the new manuals on the basis of specific unit requirements as identified on unit DA Forms 12-99. Unit commanders should make sure their pinpoint accounts accurately reflect authorizations for both lieutenants and captains, by branch. Similarly, officers should check with their units to make sure their copies of these manuals are on order.

After the initial fielding of the manuals, newly commissioned officers will receive their manuals through their officer basic

courses. Each service school should make sure enough copies of both manuals are on hand. In addition, each school should have some manuals for advanced courses officers who did not receive copies through their units. All officers should keep their MQS manuals when they leave these courses.

If all company grade officers and their leaders understand the overall Military Qualification Standards system, and if they have the materials they need, MQS II should effectively accomplish its goals.



LNOing

ALLEN L. TIFFANY

Many first lieutenants and junior captains are assigned as liaison officers (LNOs) on brigade and division staffs, and occasionally on a battalion staff as well. These are table of organization and equipment (TOE) positions. Unfortunately, the young officers are given few opportunities to act as LNOs, and spend most of their time as "assistants to the assistant" or as "project officers." Because of this, they learn little about how LNOs are supposed to work and exactly what it is they are supposed to do. When they do occasionally serve as LNOs between their units and others, it is normally within their own division and therefore not too hard for them to "muddle through."

Sometimes, though, they must serve outside their division, and this is when their jobs become more difficult. Such was the case when I was assigned as an

LNO on a brigade staff in the 7th Infantry Division at Fort Ord. One Friday afternoon, when the brigade was on its highest alert status, my commander walked in, pointed at me, and said, "I want you at corps headquarters by tomorrow morning. We've just been alerted."

I was excited and eager to take on this mission, but I had given little thought to performing my LNO duties 2,000 miles from my home station with an outfit I knew less about than they did about me and my unit. Fortunately, a quick cram session and assistance from some wise veterans gave me a substantial amount of institutional knowledge.

I found that while Field Manual 101-5 does give a good overview of an LNO's responsibilities, it does not discuss some of the more subtle tricks of the trade.

Doctrinally, LNOs are supposed to be exchanged between units when possible. If this cannot be done, liaison is effected from left to right and from higher to lower. At times, however, liaison must be effected from lower to higher. Thus, a lieutenant or captain serving as an LNO on a battalion or brigade staff might suddenly find himself as his unit's sole LNO to a headquarters one or more echelons above his parent headquarters; in other words, a brigade LNO could find himself working at a corps headquarters.

My brigade's mission was highly successful, and I believe my eleventh-hour cramming helped me help the unit. Both before and during the exercise, I did learn a lot, although I realized there was much more I had to learn. But I would like to share some of that institutional knowledge I picked up and some of those subtle tricks

of the trade that came to my rescue with those of you who may have a similar task in the future.

First, you need to put together a deployment checklist of things to take along and a list of things to do when you get where you're going. I offer here some examples that you can tailor to your own preferences and to the peculiarities of your situation.

As a starting point, then, your deployment checklist should include the following:

Telephone Calling Card. You will need this card or some kind of authorization numbers, because you will spend a lot of time on the telephone calling various places.

Phone Books. Take a telephone directory for both the post (including AUTO-VON) and the local community, and several numbers for sending facsimile (fax) documents (including the one at your unit's departure airfield or port operations center). Again, you may be calling anyone, anywhere, at any hour, and on any conceivable line and system.

Unit SOPs. Your unit tactical and administrative SOPs are critical for more reasons than I can count. Take several copies and leave a few when you return home.

Money. Take several hundred dollars. Get a temporary duty advance or take your own money if you're really short of time and have it to spare. You're going to need money for things you did not anticipate—sending overnight mail, cab rides, billets, rental cars, and other odd items that come up. And you're not going to have time to worry about finding it when you get where you're going.

Unit Call Signs and Frequencies. The need to know your unit call signs and frequencies may seem obvious, but how about the call signs, hours, frequencies, and azimuth and altitude required for the antenna at your destination to reach the TACSAT (tactical communication satellite) radio at your division's emergency operations center (EOC)? There are more ways to communicate than most people generally think of. Call the headquarters you are going to before you leave and ask the EOC communications officer to run down the system he has.

List of Commanders and Staff Officers. Make a list of unit commanders and staff officers from your level down to the platoon leaders, and keep it with you. Knowing names makes it easier to communicate when your unit and the controlling headquarters start talking to each other. In addition, you never know when one platoon or smaller unit will be sliced hither or yon for some reason or other.

List of Unit Equipment. Obtain a list of the unit's equipment by nomenclature. First, this information is critical for airload planning. To the planner, there is a world of difference between an M966 HMMWV (high mobility multipurpose wheeled vehicle) and an M1038 HMMWV, for instance. And, less specifically, there are many reasons related to equipment compatibility for knowing precisely what your unit has (and does not have).

Permissive Jump Orders. If you are airborne qualified and going to an airborne unit, obtain permissive jump orders if possible before you leave your home station. You never know when the headquarters you are attached to is going to decide to jump into an area of operations (AO).

Security Status Verification. You may feel the need to take your security status papers as well as any other "qualification" papers that may be relevant.

"Go to War" Ruck or Field Kit. At some point, you will probably find your-

self back in the field. Be ready for a long stint as an LNO and a rapid transition from a sterile, rear area corps EOC to a dirty, dark tactical operations center near the battle lines.

Coordinate for Link-up with Sensitive Items. Plan to have someone get your sensitive items to the field for you in case you can't take them when you leave. Although this is a simple task, it is also one that is easy to overlook. (You sure would feel funny in enemy territory without your M16.)

As for your second list — your "To-Do List" — you need to think in advance of what you are going to do when you arrive:

Call Home. As soon as you get to where you're going, call and check in. While you're enroute, you will be out of touch with your unit for some time, and many things can change. Even before you start on what was your first priority when you left, call to find out if that is still your first priority.

List Everyone You Meet. Meet everyone you can in the headquarters and keep a written record of who they are, their positions, and their phone numbers. Otherwise, you will be overwhelmed by the number of people you meet and then do not see again for days. Eventually, you will need to find some of them to help you solve the inevitable problems. Also, members of your own brigade will start asking for the names and phone numbers of people in the controlling headquarters so



they can start doing their own coordination.

Send SOPs Back Home. Send a copy of the controlling headquarters SOP home as quickly as possible, especially all report formats. Since everything you send to your unit has to be disseminated, give the staff as much time to react as possible.

List Primary Operators. Just as you are taking the names and telephone numbers of your unit to the controlling headquarters, you also need to send the names and numbers of the primary operators at the controlling headquarters back to your unit.

Stick to the EOC Watch Officer. If you attach yourself to the EOC watch officer and listen to what goes on (or fails to go on) around him, you will be able to give your unit a "heads up" on incoming missions, information, and the like. As an LNO you will be not only the official representative of your command but also a back-channel conduit of information and negotiator for your commander. You cannot get involved if you are not close to the watch officer.

Seek out Resources. Find out what is available that your unit may need. Be nosey and think creatively. Look around the controlling EOC and elsewhere for information, units, materiel, or other resources, and ask yourself, "Does my unit know about that? Will we have a need for it?"

Although it may seem unusual, one brigade "acquired" a battery of 155mm howitzers and some airborne jammers for a short period this way. Also, when our long range surveillance detachment teams had to lay over for several hours at a nearby airfield before jumping into their AO, I realized it would be valuable to have the team leaders come to the corps EOC for a briefing from the corps G-2 and a review of his intelligence information (maps, photos, mock-ups). It was certainly a better use of their time than letting them sit in a hangar watching the hours grind slowly by. And it helped them accomplish their mission.

Address EOC Problems. If the need arises, be prepared to comment on an EOC's performance to the watch officer or even the G-3. If there are shortcomings that are hurting your unit and threat-

ening its mission and you know the reason, you have to address the issue. First, try to fix the problem by getting personally involved. If that doesn't work, bring it up with the watch officer. And if that doesn't work, bring it up with the G-3. First, make sure your facts are straight and you have a proposed solution; then be professional and speak in private. Just because you will leave the area in a few days does not mean you have the right to be reckless or self-serving.

Overnight Mail. Be prepared to send things by some form of overnight mail. Not every document can be fed through a fax machine.

Keep Receipts. Be sure to keep all your receipts for expenditures so you can settle up later.

Call Ahead. Once you think you have thought of everything, collect all your notes and call the headquarters you are going to before you leave your home station. Speak to one of the watch officers, run through what you are bringing, and ask him to comment. Then have him run through any other requirements he has. Ask him to describe, in his own words, what you will be doing. His description may help you think of additional items you need to bring. The way they do things there will be different from the way you are used to doing them — maybe better, maybe worse, but definitely different. Also let him know when and how you will be arriving. Coordinate how you will be billeted and how you are to get from your point of arrival to the EOC. Trade phone numbers and agree upon a time you will report for duty.

Start now putting together your own checklists. And once you think you have them right, give them to your S-3 or G-3 or commander for comment.

Throughout the process of serving as an LNO, there are several things you must remember. First, mission success, for your unit and for the controlling headquarters, is your first priority. And especially in the early phase of a deployment, that success rests largely on your shoulders as an LNO. Making mistakes is OK. You will make a few, and your adopted headquarters will forgive you if you make them because you are trying hard. But do not expect forgiveness or support if your

mistakes result from your timidity or laziness.

Remember that you are in a new, strange land. Ask questions. Demand explanations and force your way into conversations when you must. Every resource you fail to tap for your parent unit because you are not dynamic enough to grasp the importance of an item or creative enough to see the value of something may, in a shooting war, cost someone his life or threaten the mission.

The two questions that should always be on your mind are, "How can I help my unit?" and "How can I help the controlling headquarters?"

Perhaps the most important thing to remember is that you are your unit's sole representative to the controlling headquarters. You should strive to achieve such a standard that when a similar alert occurs, the controlling headquarters will ask for you by name, and your own unit will want to send you. Anything else means you are just another cog in the machine.

When it is all over and you are back at home station telling war stories, take a few minutes to write a letter to the G-3 (preferably) or the watch officer you worked for. In the form of an after action review, give him your impressions of his EOC and how you as an LNO from an attached unit fit into it. Be candid but prudent. He may want and need your honest, outside appraisal to make his operation better. But he does not need any name-naming potshots. Constructive criticism is highly valuable. And in that spirit, ask him for feedback on how you did and what you might do next time to be better prepared.

It is critical, for two reasons, that we LNOs prepare to be more effective. First, we need to be the best LNOs we can so we can serve our units well. Second, the better we do our jobs, the better able we will be as future commanders and S-3s to teach the young officers who will someday work for us as LNOs.

Allen L. Tiffany, in addition to his liaison officer assignment, also served with the 7th Infantry Division as a platoon leader, a company executive officer, and a battalion S-1. He recently left active service and is now attending graduate school at the University of Kansas.

Aviation LNO

CAPTAIN WILLIAM H. MORRIS

An air assault division has certain unique capabilities, and to make the most of those capabilities, close working relationships must be developed and maintained between the infantry brigades and the aviation task forces that habitually support them. This is usually accomplished by the presence of knowledgeable aviation liaison officers at the infantry brigade and battalion levels.

The liaison officer with an infantry battalion is usually a captain from the assault helicopter company that normally supports that battalion. He provides the aviation knowledge the battalion commander and his staff need to plan for and execute a mission. He usually arrives at the battalion headquarters before the actual brigade operations order for a mission is received so that he can be in on the planning from the start.

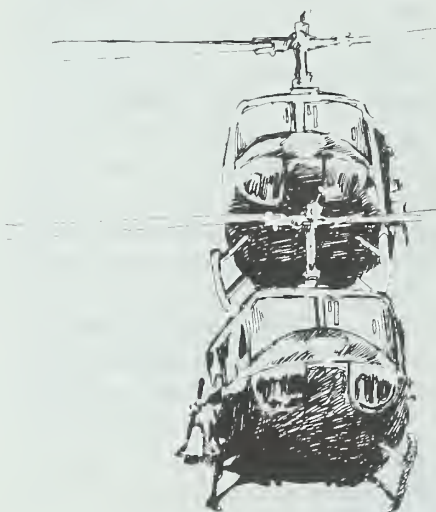
A typical scenario in an air assault division involves the execution of a raid across the FLOT (forward line of own troops) to destroy an enemy tactical missile site.

When he receives the final mission statement, the aviation LO begins working with the task force's S-3 Air. He usually produces several possible courses of action concerning the enroute air assault plan to comply with the task force commander's intent. With the ability to move and mass quickly, the LO makes sure the aviation units are technically and tactically integrated into the developing plan.

He determines primary and alternate routes of flight to the exact minute. This is of the utmost importance during the execution of any operation, but particularly a cross-FLOT raid. Using terrain masking routes of flight and breaking the

serials into basic flights of four, the LO provides for the best use of the UH-60 helicopters' speed and agility. An overall air mission commander (AMC) determines the actual flight formations on the basis of mission, enemy, troops available, terrain, and time (METT-T) and weather.

As the aviation expert at the task force command post, the LO must know and



be familiar with all of the division's organic aircraft; members of the task force will continually ask him for information about his own assault battalion's capabilities and the missions of any cavalry, attack, and medium assault helicopter units under the task force commander's control. To interdict the threat economically, the LO also plans for field artillery instead of attack helicopter support. Of course, attack helicopters furnish security from forward battle positions to provide suppressive fires on areas where the artillery units cannot.

With the help of artillery and other combined arms assets, the task force

punches a hole through the FLOT in the initial stages of the operation. This allows the assault helicopters to insert the infantry into landing zones with a minimum of casualties on the way in.

The penetration of the FLOT initiates the sequencing of all combined arms assets across the FLOT during the air assault raid. For example, the LO orchestrates the timing of the suppression of enemy air defenses (SEAD) with the task force fire support officer and IFF (identification friend or foe) codes with the air defense artillery platoon leader in support of the FLOT penetration.

For a cross-FLOT raid of this type, the LO personally briefs the air battle captain of the supporting air cavalry troop. This briefing includes any significant activities his troop may encounter during the reconnoitering and securing of the FLOT penetration points and established air corridors. Additionally, the LO continuously coordinates with the task force's higher headquarters for updates on the aviation unit's specific intelligence requirements. With effective LO coordination and close coordination between all of the task force's elements, the mission can take place quickly, with great enthusiasm and little radio chatter.

The most important part the LO plays in the task force commander's overall plan is the sequencing of task force elements into combat. The commander gives the LO and the S-3 Air specific guidance concerning the elements that he wants inserted on the initial serials into the landing zones. The number of seats available and the different sling loads for each serial integrate into a flow table that places task force elements into the landing zones at the proper time. In the case

of a missile site raid, the commander instructs the LO to plan for a front-loaded infantry company in the initial air assault serials. Simultaneously, the CH-47s sling load towed 155mm howitzers within range of the raid area to neutralize enemy advances from the flank. In short, the LO analyzes the ground tactical plan and translates it to aviation elements.

Once the LO completes the insertion plan, he begins planning for the extraction. The nature of cross-FLOT air assaults makes it imperative that all members of the task force, down to the last private, know their parts of the extraction plan. The S-3 Air and the LO develop a series of code words and aircraft readiness statuses for use when it comes time to extract the ground force.

When an extraction call comes, or with the passing of a "no later than" extraction time, a coordinated series of artillery and attack helicopter fires is started to cover the retrograde air assault forces. The LO uses the same detailed planning for the extraction planning sequence that he used for the insertion phase. By establishing coordinated extraction fires, and a sequence of readiness levels between the task force commander and the AMC, the LO ensures that the aircraft are on short final approaches as the ground elements move into a pick-up zone posture.

After the planning process, the LO takes an active part in the air mission briefing that follows the issuance of the task force's operations order. With the task force S-3 repeating the concept of the operation and the task force S-3 Air briefing PZ/LZ operations, the LO briefs the task force on the enroute air assault plan, emphasizing downed aircraft procedures, air control points, cross-FLOT considerations, and the mission abort criteria.

Also the LO ensures that the overall air mission commander and a representative from the aviation slice elements (assault support, cavalry, and attack) attend the air mission briefing. The LO tries to give these elements enough time to execute their planning sequences, including a consideration of crew endurance, when planning for the briefing time. If time permits, both the LO and the task force S-3 Air attend the overall AMC's air mission briefing to individual flight crews. This ensures the continuity of information and answers any specific questions about the mission that may have come out of the earlier task force air mission briefing.

After all the briefings are concluded, the LO gives the task force commander any additional assistance he can, including PZ preparation and helping establish an overall PZ command post that can as-

sist the ground commanders who may have questions as they move their units into a PZ configuration. Furthermore, the LO furnishes assistance to the task force staff concerning any situations that arise before, during, or after PZ operations.

The LO establishes communications relay sites at forward laager sites to assist the ground and air elements. The communication sites supply invaluable assistance to all task force elements, particularly during the extraction phase of the operation.

The aviation liaison officer plays a key role within an air assault task force. By careful, well-thought-out route and air-flow design, timely coordination with fire support elements, and with the LO having a good grip on the ground tactical commander's plan, air assault missions can move quickly and flawlessly. Above all, the strengthening of habitual working relationships between combat aviation and ground task force elements will result in achieving the full potential of the air assault concept.

Captain William H. Morris recently completed the Aviation Officer Advanced Course and now commands a company in an Aviation task force in the 3d Infantry Division. He previously served as a battalion liaison officer and a brigade Aviation liaison officer in the 101st Airborne Division (Air Assault). He is a 1984 ROTC graduate of Providence College.

The Protractor Compass

MAJOR CHARLES F. COFFIN III

Many years ago, in the July-August 1979 issue of *INFANTRY*, Lieutenant Colonel William D. Telfair (in the article "Why Johnny Can't Read—A Map!" pages 6-8) proposed a number of "radical" ideas for teaching land navigation to junior officers and NCOs.

He suggested, among other things, that perhaps the lensatic compass was not the best one for military use and that perhaps we should consider replacing it with a Silva-type protractor compass.

At the time, as a lieutenant attending the Infantry Officer Advanced Course, I

was struck by the timeliness of the article and agreed with many of Colonel Telfair's comments.

Just two years earlier, I had been introduced to the protractor-type compass while competing for a team that was to participate in a major competition. I was

not an instant convert. I had had almost six years of enlisted time, including Special Forces, Rangers, and a tour in Vietnam, as well as my commissioned time. With the arrogance of youth, I thought I had nothing left to learn about land navigation. But I had forgotten that most basic of all education tenets: "It's what you learn after you know it all that counts!"

After a half hour of classroom instruction, I began to have some doubts. By the end of the following day's practical exercises, I was convinced that the protractor-type compass was the way to go. And I have rarely used anything else since.

When Colonel Telfair's article appeared, I therefore waited breathlessly for the Army to see the wisdom of his recommendations and switch over. I'm still waiting.

In case you have never seen one, I will describe it briefly:

The protractor-type compass consists of a baseplate, usually of plastic, four to six inches long. Imprinted on the baseplate is a travel arrow for direction of travel, a scale, luminous dots (depending on the model), and perhaps a magnifying glass.

Mounted on the end of the baseplate (the end held nearest to you) is the compass housing, which contains the liquid, the free-floating north-seeking needle, orienting lines and arrow, and possibly luminous dots. The compass housing itself has degree markings from 0 to 360 in two-degree increments.

It looks simple and it is. But you can do more with it, and do it faster, than you ever can with the lensatic compass.

Colonel Telfair made some claims that he called "extravagant." Among them were the following:

- *With the protractor compass, a modified resection problem can be computed in ten seconds or less by a novice map reader. (An experienced map reader needs a minute or more using our present system.)*

- *Intersection, resection, modified intersection and modified resection can all be computed without the use of a single number. In fact, they can be accurately computed by a person who can*

neither read nor count.

- *No understanding of how many degrees or mils are in a circle, what the scale of the map is, or how to compute declination is required of anyone for the functional purpose of using polar coordinates in land navigation, which is to get from here to there.*

He was right on all counts.

For example, to compute a direction of travel with the protractor-type, place the base of the compass on your location on the map, line the edge up with where you want to go, rotate the compass housing until the orienting arrow and the orienting lines are lined up *perfectly* north, and move out! All you have to do is keep the north-seeking compass arrow lined up with the orienting arrow. Do you use numbers? No. Do you need to? No.

To do the same thing with a lensatic compass, first pull out a protractor and plot the azimuth between the two points (assuming you haven't lost the protractor, sat on it, bent it, or torn it, as I always did). Since you don't have a nice smooth desk in the field, you usually end up doing this on your round, unsmooth knee to the accompaniment of much unbecoming language.

Then rotate yourself until you face the proper azimuth. Now you move out, squinting down at the tiny numbers. Or (if you're really good) rotate the movable bezel until the luminous arrow lines up with the north-seeking arrow and move out, keeping the two arrows lined up.

To compare the two compasses in doing a modified resection, assume you are on a highway, for example, and you can see a water tower. You have found both on your map, but you don't know where on the highway you are.

With a protractor-type compass, sight on the tower and determine the azimuth to it. Rotate your compass housing until the north-seeking arrow is aligned with the orienting arrow. (If, for some reason, you need to know the azimuth in degrees, you can read it off the housing but for this problem, you don't need it).

Placing the far end of the compass on the tower on the map, and using the tower as a pivot point for the edge of the compass, rotate the entire compass until

the orienting arrow and the orienting lines are pointed perfectly north. Draw a line along the edge of the compass. Where the line crosses the road on the map is where you are. Combining the protractor and compass into one unit eliminates several steps and thus several possible errors.

Some may criticize this example, saying that you can't sight accurately with a protractor-type compass. I will grant that sighting is not as accurate with the base-plate protractor compass as with the lensatic. But I maintain that it is accurate enough for field work. If exact precision is required, you can use other methods of sighting. But what we are talking about here is land navigation for field soldiers. Besides, there is a protractor-type compass that does have sights, which negates this objection.

EASY TO LEARN

The protractor-type compass is also much easier to learn and faster to teach. For example, as an ROTC instructor, I spent four hours one fall teaching the basic use of the lensatic compass to university students, with less than satisfactory results. The following spring, we ordered protractor-type compasses. When they arrived, I gave a class using practical problems, and in less than an hour, the students had a firm grasp of the concepts and were working moderately difficult problems. Despite some initial reluctance (chiefly from students with prior military service), all had become converts by the end of the hour.

The latest protractor-type compasses have many features that the lensatic doesn't come close to having. For example, one of the top models has a built-in compensator for declination. You plug the declination into the compass and forget it. No more computing. One step and you're done.

You can also buy changeable scales for the compass, and these enable you to use it for almost any map you might encounter. For a few dollars you can also buy a pace counter that clamps to the compass.

Obviously, the protractor-type com-

pass may not be the best for some purposes, such as artillery or engineering or survey work. But these are areas that require special skill and training anyway. We are interested in the junior officer and NCO and the common soldier who work in the field.

So why don't we convert? Apparently, we have a large emotional and financial investment in the lensatic compass, and there are soldiers in the ranks today whose grandfathers used the lensatic compass. Some would say that we have so much time and money invested in it that we shouldn't change.

But our purpose is to teach our soldiers, as quickly and efficiently as possible, the skills they need to survive in a combat environment. And the time we have available for teaching them is too precious to waste on inefficient methods.

As I have seen from ROTC advanced camp after action reports and from my

own experience in combined university field training exercises, many students are seriously deficient in land navigation skills. Conversations with people in a position to know at the Infantry School confirm that one of the greatest causes of failure in Officer Candidate School or in some of the other leader courses is failure to pass the land navigation portion. This is not necessary.

The protractor-type compass is not a cure-all. There is no magic wand that we can wave and make land navigation experts of our people. That comes only with hours of hard on-the-ground practice. But why do we hinder ourselves by using outmoded methods and equipment? Why do we make it difficult for our people to learn a critical infantry task?

The protractor-type compass was originally designed for military use and to give soldiers practice navigating. Eventually, it became popular with civilian

sportsmen, particularly in Europe—not because it was difficult, but because it was simple.

The time for the lensatic compass has passed. It is time to move one of the most basic soldier skills into the present day, and to stop wasting time on slow, inefficient methods.

More than ten years ago, Colonel Telfair pointed the way. Let's not wait another ten years to do what needs to be done. Let's dump the lensatic now and move to the protractor compass. What are we waiting for?

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Urban Combat Doctrine of the Salvadoran FMLN

DAVID E. SPENCER

EDITOR'S NOTE: The views herein are those of the author and not necessarily those of the Department of Defense or any element of it.

The increased urbanization in countries throughout the world has also increased the likelihood of combat in cities, especially in Latin America, as United States forces discovered during Operation JUST CAUSE in Panama.

The November 1989 urban offensive by Salvadoran guerrillas of the FMLN (*Farabundo Marti* National Liberation Front) has presented a unique opportu-

nity for U.S. military personnel to further study the techniques of urban warfare that an opposing force is likely to use in a low intensity conflict in the future.

Fortunately, we do not have to try to discover from the events what the FMLN's urban combat doctrine was. The FMLN, in preparing for this offensive, developed an excellent manual entitled "Instructions for Urban Combat," and several copies of it were captured. The following is a summary of some of the most interesting aspects of it:

- The mission of urban combat is one of stopping and destroying enemy units by firepower, obstacles, and explosives.

This is done by defending an urban area. In doing so, small lightly armed guerrilla units can eliminate large enemy units that have air, artillery, and armor support. Too, the longer the guerrilla forces manage to resist, the higher the political and military price the government forces will pay; this theoretically leads to the eventual collapse of the latter and a final guerrilla victory. The guerrillas resist by controlling routes of approach, setting up obstacles, establishing tight security, integrating military and political objectives to annihilate enemy forces, keeping logistics and communication routes open, controlling built-up zones and areas

where the enemy might bring in troops by helicopter, and neutralizing air support.

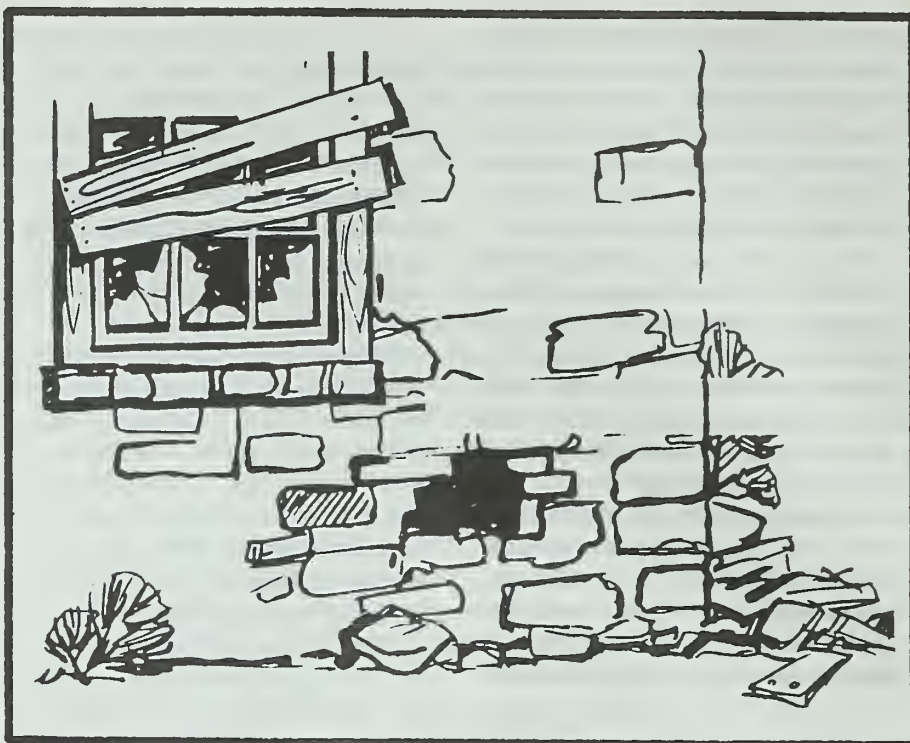
- The city is the best terrain for fighting, and that terrain can become a powerful fortress if the defenders take full advantage of it. With a few modifications, urban areas can be turned into bunkers with excellent fields of fire and communication routes, while still protecting the guerrillas from enemy fire, observation, and aerial attacks.

- The more built-up lower class residential areas offer better possibilities for urban operations, because they always have bare spots through which to move that are covered by buildings. (Many residential neighborhoods are connected to the rest of the city by only one or two main roads with foot paths leading from a road to the buildings. Since these lower class urban areas tend to spring up spontaneously rather than in a planned manner, the layout of the streets and buildings is haphazard and unpredictable, and this offers several advantages to the defender and disadvantages to the attacker.)

- Because these same areas are populated by working class people, tools are usually available, and a large number of the people will be sympathetic to the cause. Accordingly, the people can be put to work building fortifications and barricades. And because the areas are heavily populated, the armed forces will be deterred from applying their full firepower to root out the guerrillas, and if they do apply it, the resulting civilian casualties can be used for propaganda purposes.

- The first thing the defenders do to prepare the terrain is to build positions on the street corners, especially those with sidewalks. A hole can be broken in the sidewalk to make a trench, and then various materials—bricks, dirt, cement—can be piled around it. Such a position is good for rifles or RPG-2s or RPG-7s. Close to this corner position, a hole should be opened into the wall of a house that a soldier can move into for protection.

- When a house is occupied, a defensive position is dug on the first floor preferably next to a wall, and then fortified. A hole is knocked into a wall just big enough for observation and fire. Doors and windows can also be used, but they



should be covered with bricks and other materials, leaving only the small hole.

- Communications trenches should be dug in occupied houses so that they permit movement from one house to another, from one street to another, from one block to another. These trenches should be about one and one-half feet wide by three and one-half feet deep so that one person can move through them freely. Large holes should be knocked in the walls to facilitate movement between houses. (Many houses are built side to side and back to back.) This allows a guerrilla to move without exposing himself to enemy fire or observation. If the enemy penetrates a guerrilla position in a building, the guerrilla force can retreat and then use these holes to move undetected and counterattack the enemy from a flank.

- Roofs can be used for antitank weapons, observation, snipers, and heavy machineguns, and the upper floors for observation, machineguns, and snipers. Positions in the upper floors should be fortified with all available materials and should also have access to lower floors for refuge from aerial and indirect fire attacks. Overhead cover should be added to all positions to protect the occupants from mortar fire and bombs dropped by aircraft.

- Mortars, because of their high angle of fire, do not have to be placed in high places, but they do need an observer in a high place who has a field of vision to the targets and either visual or radio contact with the mortars.

- Barricades should be placed in all the streets approaching the guerrilla position. Anything can be used for barricades—cars, buses, logs, dirt, bricks—but these should be combined with mines and deep trenches to impede the movement of armored vehicles.

- Minefields should be laid to stop not only vehicles but troops as well. Booby traps should be placed in the windows and doors of buildings, and mines should be placed in any open spaces where the enemy may try to land troops by helicopter.

- The enemy has the capacity to launch night operations, and in urban terrain his approach may not be limited to the roads and open spaces but may be through a hole in a wall, an underground tunnel, or from roof to roof. To defeat enemy operations at night, defensive positions must be changed as soon as it is dark to fool the enemy as to their real locations. These new positions must be chosen so that critical points and routes of approach are still under guerrilla control. Any open sectors must be occupied or patrolled. Wherever possible, captured night vision devices

must be used. Control of communication routes is maintained by early warning devices and forward listening and observation posts.

During the November 1989 operation, the guerrillas were generally able to set up urban defenses according to this manual if they were not attacked for more than 12 hours after penetrating an area. In addition, they used a large number of snipers and sharpshooters. These soldiers would find the highest point in an area, whether it was a tree or a tall building, and harass the government forces, whose soldiers suffered a large number of gunshot wounds to the head.

Although the manual does not mention the preparation phase for the 1989 offensive, the guerrillas spent months, possibly years, preparing for it. Beginning as early as 1986, the FMLN began infiltrating cadres back into the cities to carry out urban terrorism and to prepare the political climate for an urban uprising by penetrating labor unions and student organizations.

In 1988 the FMLN completely re-equipped itself with Soviet-designed weapons, probably so the required amounts of material could be brought into the country in preparation for the offensive. Western-designed weapons were becoming hard to obtain from Cuba, Vietnam, and Nicaragua. The new Soviet weapons were brought in in trucks equipped with false panels in the sides, roofs, and floors under which the arms were stored. These trucks were hard to detect because El Salvador had no weighing stations and could not check the actual weight of a truck against the weight shown on a manifest.

In addition, personnel and weapons were prepositioned in safe houses all around the target cities. In some areas they had targeted for takeover, guerrillas rented or bought apartments and then secretly converted them into bunkers by adding second walls and making other modifications.

It is not clear exactly how the FMLN managed to mass their troops and move into San Salvador undetected, but the city is laced with deep ravines and streams originating from the two volcanoes that flank the city. It is known that the guer-

rillas followed these to penetrate some neighborhoods. Many no doubt came in before the offensive, and Salvadoran Army sources claim that some were brought in under cover of darkness inside armored trucks disguised as moving vans, with a second layer of steel plate welded on the inside to protect the human cargo from rifle fire.

The FMLN's urban doctrine was designed to take care of two basic problems of the guerrilla fighter in urban terrain—the enemy's air power and his armored vehicles. It placed great emphasis on various methods of accomplishing this, but this did not always mean using weapons. For a guerrilla fighter, there is no distinction between political and military means of winning a war. In this case, the FMLN directed that the combatants establish themselves in the most densely populated areas of the city. This would neutralize the power of the air force and in many cases would also deter the use of the armored vehicles' cannon and heavy machinegun fire. Barricades, obstacles, minefields, and antitank weapons would prevent the Salvadoran armor from attacking. This left the Salvadoran infantry—which had no urban combat training—to try to force the guerrillas out of heavily fortified buildings, an obvious advantage to the defender. This meant that the job would be slow and the casualty rate high.

Although the FMLN manual is generally in harmony with the U.S. urban combat doctrine found in Field Manual 7-8, it contains no techniques for assaulting fortified buildings. This curious omission indicates two things:

First, the FMLN was counting on surprise to enable the guerrillas to occupy the urban area of San Salvador quickly and then to defend it. To initiate the offensive, the FMLN improved the element of surprise by launching several diversionary raids against military bases. These raids were an attempt to keep the troops in the barracks and to cause the military services to focus on the security of their bases while the guerrilla forces quietly slipped into the city to set up their defenses.

Second, the omission reflects the basic premise of the guerrilla tactic of defeating

a more powerful force with a weaker one: The guerrillas could not afford to waste their strength taking defended and fortified buildings; instead they would force the government forces to try to take the guerrillas' fortified urban positions.

The FMLN doctrine was designed to try to put the armed forces and government of El Salvador in a no-win situation. The longer they took to drive the guerrillas out, the greater the political victory would be for the insurgents, and the stronger the national and international press would perceive them to be.

On the other hand, if the government forces used their heavy weapons—artillery, aviation, and armor—they would quickly drive the guerrillas out, but at such a high civilian cost that it could provoke a general uprising.

FMLN urban doctrine is heavily influenced by the experience of the Viet Cong during the Tet offensive of 1968 and by the Sandinista experience during the battle for Managua in 1979. In Vietnam, the insurgents' show of force, even though they exterminated themselves in the process, signaled the beginning of defeat for the forces of the United States and the Republic of Vietnam. In Managua, when Anastasio Somoza decided to use his air force and armor indiscriminately against guerrillas who were mixed in with the civilian population, the resulting casualties provoked the anger of the Nicaraguan people and led to his rapid overthrow.

While the effects of the November 1989 FMLN offensive are still being felt, it should be noted that insurgent urban combat doctrine is often directed toward an overriding political goal rather than a short term military victory. In a future conflict of this type, therefore, it is likely that a U.S. opponent force will employ similar urban combat doctrine.

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the IPB process in low-intensity conflict

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LIEUTENANT COLONEL ALAN J. ROCK

In preparing to conduct task force level intelligence operations in a low intensity environment, a battalion S-2 has numerous handouts and guides available that will serve as a framework. All of these references contain the requirements and techniques for conducting successful operations against an insurgent force. In other types of low intensity conflict, however, these references may prove inadequate.

The 2d Battalion, 27th Infantry, for example, during its deployment to the Republic of Panama in August 1989 as part of Exercise Nimrod Dancer, faced a "show of force" contingency or an "actions short of war" scenario. (This was, of course, some months before Operation JUST CAUSE began in December 1989, in which the battalion also participated.) The intelligence planners soon realized that they needed to ex-

amine the intelligence preparation of the battlefield (IPB) process and look for ways to present the mass of information to commanders in formats that would make it more useful and timely.

The results of this experience should broaden the efforts already being dedicated to training intelligence professionals in low intensity operations.

As the task force deployed to Panama, the units knew they were in for a challenge. They had previously participated in such exercises as Team Spirit in Korea and those at the Joint Readiness Training Center. Now, though, they would be exposed to a different environment in which their task would be to "protect and defend" and "exercise our rights in accordance with the Panama Canal Treaty." This meant that the combat-ready soldiers would have to exhibit their discipline and training by adhering strictly to rigid rules of engagement and conducting operations as professionally as possible.

The S-2 had been reading about General Manuel Antonio Noriega's Panamanian Defense Force (PDF) and tended to picture it as an army, led by one man and supported by a chain of command. What he found instead was that the PDF was a conglomeration of many different forces. It included the local police, the military zone garrisons, assorted infantry and military police companies, naval infantry (marines), a small navy, a smaller air force, special operations forces, and paramilitary support groups.

In many areas, the chain of command was not represented by the ranking commander but by the most dominant figure. The leaders often had been chosen by General Noriega for their special blend of personal loyalty and competence.

Interestingly, many of these trusted commanders were not anti-American, but had followed Noriega because he had played a key role in the advancement of their careers. At the same time, though, many had indicated through numerous sources that they would not fight against the United States, and it was uncertain what they might do in the event of hostilities.

The Panamanian soldiers themselves were a key unknown. While their paydays often came and went without compensation, they were still better off than many of their civilian counterparts. And although many of them had voted against Noriega's candidate in the May 1989 elections, intelligence estimates indicated that should hostilities begin, half of the PDF regulars would surrender if given an opportunity. The rest would probably put up sporadic resistance until they were overwhelmed or would try to escape to fight from bases in the jungle.

For the time being, the PDF had placed itself in a defensive posture, allowing U.S. soldiers to train and conduct operations in Panama relatively free of hindrance. But there were many factors that could rapidly change this situation.

In an effort to bolster support for his regime and defend against U.S. intervention, Noriega had created the Dignity Battalions (DBs), made up of Panamanian nationals who had cast their lot with him. When originally formed, some of these battalions had boasted a strength of more than 1,000 members each. By August 1989, though, many were down to 100 to

150 hardcore members with a small PDF cadre. The rest were government employees who had been ordered to participate or risk losing their jobs.

Although the reliability of the DBs was questionable, these groups had to be addressed during the staff planning for all of the battalion's exercises. For the most part, they were ill-trained, having received some weapons, tactics, and terrorist training to be used against the United States in the event of hostilities. Still, they were armed, many had violent crimes and drug convictions in their backgrounds, and they had tried to "bait" U.S. units into counter-productive incidents.

Another group that could not be overlooked was composed of the nationals of other countries that were unfriendly to the United States. There were Cuban and Nicaraguan military advisors in Panama, for example, whose influence had yet to be determined but who clearly thought that an unstable Panama would work in their favor. Additionally, there were Syrians and Libyans who had helped the Dignity Battalions train for terrorist operations.

Finally, the PDF had special operations forces, the best trained of which was a special security anti-terror force that could conduct special operations anywhere in Panama. In fact, they had received anti-terrorist training earlier from the United States and Israel. Although their primary mission in the event of hostilities would be to protect Noriega and his headquarters, they could not be ruled out as pre-emptive strike force. The PDF also had a commando unit—actually more like a light infantry company—that was frequently used to guard Noriega at his homes.

GENERAL POPULATION

As to the general population (usually the key ingredient in low intensity conflict), the Panamanian people created an interesting problem. Most were reported to be anti-Noriega but apathetic to the notion that they should do anything to oust him. The opposition had repeatedly called for participation in programs designed to force him from power, but these efforts had failed. While the people could be expected to support Noriega's removal by the U.S., they could not be expected to support a large loss of Panamanian life or any attempt to alter or abrogate the Carter-Torrijos Treaty. Thus, the general populace could not be expected to play an important role in a short-term conflict with the Panama Defense Forces.

An assessment of the opposition party showed that the largest and most notable, led by Gabriel Endará (who became President after Operation JUST CAUSE) had chosen peaceful resistance as its method of struggle against the regime. It called for the people not to pay their taxes or participate in the Government's lottery. The group's few demonstrations had been small and non-violent. These people had not taken to the streets in mass since the debacle in May 1989 in which they had been beaten by PDF and DB members. While they publicly called for the Panamanians to solve Panama's problems, privately they also looked to the United States to move against Noriega.

It was in this environment, then, that the commanders and

the staff of the battalion task force would plan and conduct their operations during the exercise. In addition to the many other constraints upon the leaders and soldiers in executing their missions, the chain of command down to the team leaders had to make sure all of the soldiers' movements and actions were in accordance with the Panama Canal Treaty.

Accordingly, they trained their soldiers using color coded maps that reflected the treaty's specific points. Its definitions were so fine that areas of operation were broken down by streets and buildings. In some cases, buildings had certain floors or rooms that U.S. soldiers could not enter without violating the treaty's provisions. They had to cross streets at specific points, orient weapons in certain directions, and take the most direct routes.

The discipline of the small unit leaders was further tested by the restrictive rules of engagement. In the event they were threatened or fired upon, both leaders and individual soldiers had to follow these rules—to the letter and in the prescribed order. A violation could involve a loss of life, create an incident that would threaten the United States' posture in Panama, or begin an all-out conflict. Such rules demanded the leaders' daily attention to the discipline and maturity of their young soldiers.

Another challenge presented to the company commanders and their squad and patrol leaders was the possibility of having to fight elements of different PDF units that had different capabilities, tactical missions, morale, commanders, and equipment. At many Panamanian outposts, as many as three different PDF elements could be found sharing duties.

Too, commanders had to be prepared to launch major security missions, with their platoons going to different areas controlled by different Panamanian units. In these situations, the distinction between "committed" and "reinforcing" elements became hard to determine.

The commanders also had to consider the different kinds of terrain in the task force's area of operations. One platoon of a company might be committed, for example, to an open area of sparse vegetation with tall grasses, another to an urban environment, and the third to hilly terrain and thick jungle—all on the same mission.

Once the staff members became aware of the full extent of the information that would have to be included in the IPB process, they knew that they needed better ways of presenting the intelligence data.

Obviously, addressing the variations in terrain and opposing forces would create an extensive intelligence annex at company level. At battalion task force level, the annex was as long as the entire remainder of the operations plan. Doctrinally, the annex was correct. It listed and discussed all the approved areas: The area of operations broken down into the OCOKA factors for each (observation and fields of fire, cover and concealment, obstacles and movement, key terrain, and avenues of approach); the enemy situation, including composition, disposition, and strength; the enemy capabilities; and conclusions and probable courses of action.

The problem was that the various commanders tended to read the document initially and try to store the information.

ENEMY UNITS	SITE/OBJ # 1	SITE/OBJ # 2	SITE/OBJ # 3
ENEMY # 1	PLATOON POSSIBLE	PLATOON UNLIKELY	PLATOON PROBABLE
ENEMY # 2	SQUAD UNLIKELY	PLATOON PROBABLE	SQUAD POSSIBLE
ENEMY # 3	PLATOON PROBABLE	SQUAD POSSIBLE	SQUAD UNLIKELY
ENEMY # 4 (SOF)	SQUAD POSSIBLE	SQUAD POSSIBLE	SQUAD UNLIKELY

Figure 1

Because of its length and their other daily operations, though, they might not be able to retain important specific details when time came to execute the operation.

The battalion commander therefore tasked his S-2 staff to come up with a "working document" that he and his subordinate commanders could refer to on a moment's notice. He asked them to break the annex down into matrices with the emphasis on the OCOKA factors, the sites to be secured, the opposing forces that might try to disrupt the unit, their level of response, and any indicators of a particular response.

With this guidance in mind, the S-2 staff broke down the intelligence verbiage into three easy-to-use, quick-reference matrices containing the critical information: The Enemy Response Matrix, the OCOKA Matrix, and the Enemy Courses of Action Matrix.

The Enemy Response Matrix (Figure 1) combined enemy composition, disposition, and probable courses of action into an easy-reference, grid format. In essence, this matrix allowed a company commander to prepare for and execute his mission knowing the units he might face and in what strength. This format also enabled him to concentrate on the enemy units that posed the greatest threat to his mission without having to go through the entire intelligence document. Most important, it helped him in selecting patrol routes and gathering battlefield information during the mission.

	SITE # 1
OBSERVATION FIELDS/FIRE	LIMITED DUE TO ROLLING TERRAIN/RAINFOREST. GOOD 100 METERS TO THE WEST. OBSTRUCTED BY BUILDINGS TO THE NORTH AND TALL GRASSES TO THE SOUTH
COVER AND CONCEALMENT	RAINFOREST PROVIDES CONCEALMENT BUT LIMITED COVER ROLLING TERRAIN PROVIDES COVER AND CONCEALMENT FROM SMALL ARMS FIRE
OBSTACLES	X LAKE TO THE SOUTHWEST - RAINFOREST IMPEDIMENT TO MOVEMENT ABOVE SQUAD LEVEL - CONCERTINA WIRE AND FENCE AROUND OBJECTIVE
KEY TERRAIN	HIGH GROUND VIC (AB 123456) INTERSECTION OF RED AND BLUE ROADS VIC (AB 132546) BUILDING VIC (AB 113446) (OBJECTIVE)
AVENUES OF APPROACH	RED ROAD FROM THE NORTH BLUE ROAD FROM THE WEST X LAKE (WATERBORNE) FROM THE SOUTHEAST

Figure 2

The OCOKA Matrix (Figure 2) broke down the military aspects of the terrain, or OCOKA, factors. Here again, a company commander could now focus his attention on the sites or objectives that applied only to him. Instead of having to

extract the terrain information from the battalion level plan, he could easily concentrate his planning on the specifics presented to him. Also, during the course of his reconnaissance, he could personally check specific areas for accuracy and for their importance to the accomplishment of his mission.

The most important of these matrices, the Enemy Courses of Action Matrix (Figure 3), combined the enemy's probable courses of action with his capabilities. This presented a company commander with the options that would be available to his foe during the operation.

The matrix was laid out by site, addressing the enemy's potential response (in the order of probability and level of threat to friendly forces) and the indicators of those actions.

SITE # 1	
POTENTIAL ENEMY RESPONSE	INDICATORS
1. LOW THREAT	
A. OVERT RECON	VISUAL SIGHTING
B. COVERT RECON	SENSOR ACTIVATIONS
C. DEMONSTRATIONS	TRAFFIC, BUSES, CAMERA CREWS
2. MEDIUM THREAT	
A. PROBING/HARASSING U.S. POSITIONS	NIGHT MOVEMENT /INCREASED READINESS/ SENSOR ACTIVATIONS/ DETECTION
B. ROADBLOCKS AND CHECKPOINTS	CLASS IV/POLICE
3. HIGH THREAT	
A. AMBUSH U.S. PATROLS/UNITS	INCREASED ACTIVITY/TROOP MOVEMENT
B. CONDUCT GUERRILLA WAR	TROOPS DISPERSING WITH WEAPONS

Figure 3

While this matrix may seem simplistic, it successfully presented the enemy options in a clear, easily understood format for the commander on the ground. The indicators were examples of the activity that could lead the enemy to respond over time; and with more information, some indicators might be ruled out as more became known about the enemy. Moreover, they served as a starting point for both collecting intelligence and stimulating the process of recognizing key enemy activity. For example, in other theaters, the movement of buses and people might not be worth noting. In Panama, however, buses were the PDF's primary means of transporting paramilitary groups.

Although these matrix formats were prepared for use in a low intensity conflict operation, they should be considered for use across the entire operational continuum. They could easily be applied to a high intensity conflict that involved armor and motorized rifle units and adapted for use in offensive and defensive operations, not just security missions.

The Enemy Courses of Action Matrix could be used in an offensive operations plan. The levels of threat would then be replaced with the degree of tactical surprise achieved by the offensive force. For example, the headings *Low Threat*, *Medium Threat*, and *High Threat* could be replaced by *Surprise*, *Some Warning*, and *Full Warning*.

In short, these are tools that a battalion task force S-2 can

use when preparing for operations on a multidimensional battlefield.

The crisis in Panama provided a valuable lesson for the intelligence officers who were on the scene. Intelligence and operations at strategic level can have an immediate effect on the enemy's force disposition and probable courses of action. Nothing more dramatically demonstrated this than the coup attempt of 3 October 1989. To provide the task force commander with up-to-date information and intelligence, the S-2 staff had to monitor army-level intelligence nets. And there is no scenario in which tactical intelligence officers are trained to base their intelligence formats on the reporting of a command three echelons above them. Normally, intelligence information is filtered level by level so that it is applicable to the units it is passed to. In the Panama crisis, however, army level reports had a direct and immediate effect on the PDF in the task force's area of operations.

If the task force commander had had to wait to get the information through the proper channels of dissemination, his decisions concerning his operations could not have been as timely. This is no indictment of the higher staffs or commanders, just an example of how rapidly intelligence can perish in a low intensity conflict or an "actions short of war" situation.

Intelligence officers are taught that "intelligence is for the commander." But if intelligence products are to be useful, they must also be concise and easily understood. The commander must be able to see the enemy and his capabilities quickly and completely. Although encyclopedic intelligence annexes are valuable as an information tool, at the brigade and battalion task force levels they are unwieldy and do not best serve the commander's needs in preparing his operations plans and orders.

Timely and well-formatted intelligence is associated with operational success on the battlefield. In the exercise in Panama, the matrix format clearly made the development of the IPB easier and contributed immeasurably to the timely dissemination of intelligence to the company commanders.

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ISLAND WARFARE

MAJOR ROBERT L. MAGINNIS

Island operations have been a significant part of U.S. military history. Such operations have been conducted, for example, in Cuba, the Solomons, the Philippines, Okinawa, Sicily, the Aleutians and, more recently, Grenada.

These joint operations are always difficult for a variety of reasons, but those conducted in some of the world's cold and windy archipelagos are especially challenging. And, unfortunately, the preparedness of the ground component of these joint forces has long been neglected. The Army should begin studying some of the lessons learned from both U.S. and Allied operations and then equip and train their soldiers accordingly.

Two campaigns can be used as examples of the kind of problems our forces might face in such areas in the future: The U.S. experiences in the Aleutians in World War II and the British experiences in the Falkland Islands in 1982. These areas share similarities in geography, weather, vegetation, and hydrology.

The Aleutian Archipelago, which is still strategically important for numerous reasons, is a 1,200-mile chain of more than 100 rugged, volcanic islands that include Amchitka, Attu, Adak, Agattu, Kiska, and Shemya.

Kiska, which lies midway between Adak and Attu, was occupied by 6,000 Japanese troops for 13 months in 1942-1943. (These forces were evacuated under cover of fog in late July 1943, and their departure was not detected until a U.S. task force of 34,426 men stormed the beaches on 15 August.)

Shemya—in the Eastern Hemisphere midway between

Adak's Naval Air Station and the Soviets' large naval base, Petropaulov—is a 4.5-by-2.5 mile atoll that was occupied near the end of the war by thousands of U.S. soldiers.

The mountainous island of Attu, 35 miles west of Shemya and the last island in the chain, was invaded by the Japanese in June 1942. In May 1943 the U.S. 7th Infantry Division assaulted its beaches under a shroud of fog. This battle cost both sides numerous casualties. All told, the U.S. landing force suffered 3,829 casualties, of which 549 were killed. The Japanese lost at least 2,351 men before the island was declared secure.

The lessons learned during that period can be discussed generally in terms of the battlefield operating systems.

First, maneuver to and on the islands was extremely difficult because of the geography, the weather, the vegetation, and the hydrology. The geography includes volcanoes, mountains, rocky cliffs, deep valleys, and uneven shorelines. The weather includes average winds exceeding 15 knots and annual precipitation exceeding 200 inches. The vegetation consists primarily of layered grasses and small shrubs. The decaying layered grasses and mosses form muskeg, which is spongy to the step.

Finally, the islands' hydrology is unique. The water table (almost without regard to the elevation) always seems to be just below the surface. Vehicle movement across the muskeg (along with the frequent temperature changes) quickly breaks down the cover to reveal underneath a thick and deep black mud that makes future vehicle movement almost impossible.

(Recent island maneuvers have verified this fact. The Army's versatile small unit support vehicle (SUSV) appears to be the only one that consistently conquers the muskeg, bog, and snow fields.)

During the war, U.S. soldiers made multiple amphibious landings in the Aleutian chain. These were difficult because of the unpredictable tides, the rocky shorelines, and the persistent fog. (To land on Attu in May of 1943, soldiers were suspended by their ankles over the bows of the landing craft so they could literally feel the way to shore.)

Most cross-country maneuver was by foot. Soldiers walked two steps forward and often slipped one step back. The snow on the steep slopes of Attu quickly exhausted young men carrying combat loads. Helicopters and airborne assaults were not available and would have been impossible in any case due to fog, wind, and terrain.

Intelligence-gathering resources were limited. The soldiers in the forward positions provided the only reliable intelligence.

Direct fire weapons provided the most effective fire support. Air strafing and bombing were limited to the few days when fog did not shroud the targets. Field artillery was shore-bound because of trafficability, and poor visibility and high winds significantly affected its accuracy. Naval gunfire was generally not available.

Mobility was limited not only for the reasons outlined above, but also because there were virtually no roads. (At that time, of course, helicopters and cross-country vehicles were rare.) Only steel mats made runway construction possible.

The high water table severely limited other construction. Buildings had to be built on platforms that were anchored to the ground to keep them from being blown away.

Air defense was not a U.S. strength in the Aleutians. The Japanese offered the only effective ground-to-air contest, and that was only marginally effective because target acquisition was limited by poor visibility. (The Japanese employed 75mm guns and 20mm cannons on Kiska against high flying bombers.)

COMBAT SERVICE SUPPORT

Combat service support was the commander's most pressing challenge during the campaign. The distances were tremendous, and the delivery systems were at the mercy of the weather. Ships found few deep, protected harbors. The high seas and accompanying winds frequently thrust these supply vessels against the rocky coastlines.

Most supplies had to be hand-carried. The soldiers' clothing was completely inadequate against the constant wind, cold, and mixed precipitation. Frostbite, hypothermia, and trench-foot plagued every soldier. (One hundred and twenty-six soldiers suffered debilitating trenchfoot during the unopposed invasion of Kiska in August of 1943.)

The command and control of ground forces during the campaign was also difficult. High level communications among the armed services were limited by interservice rivalries. Too, radio traffic was often ineffective because of the aurora bore-

alis, the unique mineralogical characteristics of the islands, and the limited technology of the day. The short-range radios were principally line-of-sight, and the AM radios were significantly affected by weather changes.

The Aleutian operations of World War II serve as a primer for a study of the British-Argentine War of 1982. The significant similarities affected the ground forces as much as the other services—if not more. The two locations were geographically similar (islands with mountains and high water tables). The weather was also similar (cold, windy, heavy precipitation, and frequent fog). The terrain on both island groups included bogs, grasslands, and areas with small shrubs. Additionally, both armies fought significant distances from their support bases.

The British lessons learned that are offered here are based on infantry battalion commanders' after action reports. As before, the lessons are presented using the battlefield operating systems as a guide.

INDIRECT FIREPOWER

The accuracy of the available indirect firepower in the Falklands was significantly affected by the winds, which, in some cases, were so bad that artillery corrections at a range of 10 kilometers amounted to as much as 1.5 kilometers. Once the artillery was properly targeted, it was still often only marginally effective against well-dug-in positions, as Argentine soldiers in positions overlooking Port Stanley demonstrated. One report indicated that not one man in these well-prepared positions was wounded by British artillery.

Additionally, the peaty soil of the islands reduced the explosive and fragmentation effects of the shells. In some cases, high explosive rounds that landed within 10 meters of a target did not produce casualties.

A number of mechanical problems arose. For example, the cold made it difficult to screw fuses into the shells. The 81mm mortar crews learned that the nature of the ground and the high frequency of firing, at charges 7 and 8, often caused baseplates to break. They also determined that it was more advantageous to increase their high explosive load and decrease the number of illumination rounds, because high winds frequently made the latter ineffective.

Small caliber direct fire weapons, rifles and machineguns, served well. The 2d Battalion, The Parachute Regiment (2 PARA), noted that shooting at short ranges (especially when clearing trenches) was an important skill to learn. They also noted that engaging fast moving, pop-up targets at short ranges (during day and night) appeared to be ideal preparatory training for the type of fighting they had to conduct. Such training would prepare soldiers to identify targets quickly and to engage them properly. The Director of British Infantry and the Royal Marines recommended increasing the then-current four-to-one ball-tracer mix to permit better fire control during conditions of limited visibility. Finally, the Royal Marines recommended that each rifle squad be given two machineguns to increase its available firepower.

The intelligence coming from resources outside the infantry battalion was too often improperly coordinated and slowly disseminated. This was due partly to the over-classification of information. Information about the battalions' intentions, however, was not as well protected by higher British headquarters. For example, the British Broadcasting Corporation World Service announced that the British attack on Goose Green was about to begin, which was useful information for the Argentine defenders.

Reconnaissance patrols provided the battalions' best source of accurate intelligence. The 3d Battalion, The Parachute Regiment (3 PARA), and the 2d Battalion, Scots Guard, found that aggressive and detailed patrolling was vital to successful infantry operations.

In fact, the 3 PARA had re-formed a patrol company a few months before the war, consisting of a small headquarters and 12 four-man patrols. Its assigned missions included OP screening, route reconnaissance, long range surveillance, and guides for rifle companies.

Although these patrols provided the details of the enemy strengths and unit dispositions, their activities did create risks. For example, the danger of clashes between patrols and the concurrent loss of secrecy could negate the value of putting out patrols. Clashes that did take place generally occurred when a patrol operated out of its assigned sector.

Three key patrol lessons were identified: First, proper preparation and detailed briefings were essential. Second, the unit had to have an effective system for identifying friend and foe. Finally, four-man reconnaissance patrols were absolutely indispensable.

LAND BATTLES

The nine major land battles of the campaign were all either fought at night or began as night attacks, because the British found that night operations reduced the number of friendly casualties. Employing the principles of information, simplicity, and surprise in planning night attacks, they depended on information generated by unit reconnaissance patrols. This information was disseminated to the lowest echelons. To avoid confusion, night operations were also made simple, but multi-phased. Finally, they capitalized on surprising the enemy.

In an advance to contact at night, a loose column formation proved easier to control, faster, and less tiring than a long "snake-like" formation. This formation made control easier because, in the darkness, it was hard to get accurate grid references and positively identify enemy targets.

A few other general points about the attack are worth noting. The importance of "fighting through" an objective in depth cannot be overemphasized. Thorough, realistic attack training is absolutely essential.

Reorganizing on the objective after an attack was another issue. The British commanders felt that a counterattack was likely to follow a successful attack. One of the lessons learned was that the successful attackers had to be supplied immediately with supporting weapons and replenished with ammunition.

The solution to this problem was to form a special group of load carriers from unit personnel outside the rifle companies, led by an experienced officer.

As Clausewitz observed, the decisive battles of history that "led directly to peace" were won with rifle and bayonet, by the age-old infantry tactic of closing with the enemy and destroying him by fire and maneuver. In the final analysis, it was the men who slogged up to Port Stanley with rifle and pack who ultimately carried the day.

The movement of British infantry across a trackless terrain of rocks and bog, in darkness and appalling weather, had a predictable effect. Many soldiers injured their ankles and knees as they tripped and fell under their heavy loads.

The infantry's ability to move rapidly cross-country with heavy loads was critical to the success of the operation. The 45 Commando Royal Marines and the 3 PARA moved more than 50 miles before attacking Port Stanley. Some infantrymen were not accustomed to moving cross-country with full packs (which the British refer to as "yomping.") Some units found that their "yomping" preparation was insufficient. (One unit suggested the desirability of a light trolley to use in moving heavy loads cross-country.)

The Argentines' use of mines to counter British mobility provided two valuable lessons. First, the British found that their own mine-clearing capability was weak. Second, they learned that the Argentine defenders did not mark their minefields, and being uncertain about the mine hazard, rarely patrolled forward of their positions.

AIR-TO-GROUND

The British suffered some casualties from Argentine air-to-ground fire, and the British soldiers quickly learned to return fire and find cover, although not necessarily in that order. Accurately engaging enemy aircraft with small arms was a rapidly acquired skill. Uncontrolled, however, this small arms anti-aircraft fire was dangerous to troops in neighboring positions. The British also found that virtually anything fired at an attacking aircraft had a good effect. They learned that not only could they shoot an aircraft down, but they could also frighten a pilot into aborting his mission or using his weapons prematurely. In some cases, they actually prevented or hindered the use of aircraft missile systems.

An estimated 117 Argentine aircraft were destroyed during the war, most of them credited to air-to-air action (Sea Harrier Sidewinder missiles or 30mm cannon) or to ship-to-air missiles. Approximately 20 Argentine aircraft were shot down by shoulder-launched missiles (Blowpipes and Stingers), cannon fire, or small arms fire.

The British had limited close air support and army aviation resources, and those they did have were primarily dedicated to defending the fleet, providing logistical support, and evacuating casualties.

The British infantry had trained aboard ship as they sailed to the Falklands, and had done extensive physical training and weapons training. All the soldiers were taught to administer

intravenous infusions (IVs) and morphine, to apply first aid field dressings, and to carry out immediate resuscitations. These skills were critical during the operation because many British casualties had to wait as long as seven hours before being evacuated.

Casualty evacuation was typically linked to the details that carried ammunition resupply to forward positions. The battalion second-in-command often coordinated and ran resupply missions while also hauling out the wounded.

Ammunition resupply on the spread-out battlefield was problematic. It required the close and constant supervision of the battalion second-in-command. This took him away from other pressing matters. Unit preparations for night attacks were especially taxing. The unit was required to stockpile munitions before the attack. This strained the supply channels, which were already partially crippled by too few helicopters. The rate of ammunition use was also a problem; because it was higher than originally anticipated, the leaders had to monitor their expenditures closely.

Finally, there were small unforeseen situations. For example, a British Special Air Service (SAS) combat patrol in South Georgia radioed for a resupply of grenades. But a crate marked "handgrenades" that was delivered a couple of hours later by helicopter contained instead hundreds of teacups. (Fortunately, this was not a common occurrence.)

Probably the fiercest obstacle the British infantry encountered was the weather, which was positively cruel. From May on, it was wet, windy, and totally unpredictable. Freezing rain, driven by gale force winds in ever-changing directions, made operations difficult. Coupled with this were 12 to 14 hours of darkness each day.

The weather severely tested the durability and suitability of combat uniforms. The British did not have a boot that was suited for long cross-country movement and that dried quickly and retained heat. As a result, there were many trenchfoot cases (as high as 75 percent in at least one unit).

British command and control on the Falklands also provided a few lessons. In general, a battalion commander and his tactical command post were located far forward. The main battalion command post, however, moved infrequently and served

to "read the battle" and coordinate casualty evacuation, ammunition resupply, and movement of units in the rear area.

The plans they made seldom lasted more than 12 hours, and last minute changes riddled the battle planning process. For this reason, plans tended to be simple and limited to a single sheet order. To further frustrate the planners, the operation took place at the juncture of four map sheets and two grid zones.

Radio communications provided a few lessons. Radios were required down to the squad level. At company level, a multi-station system (similar to a frequency jumping VRC-12) proved best. This permitted the squad leaders to render situation reports and the troop commanders to direct their own local battles.

The British lessons learned from the Falklands War, along with the U.S. lessons learned from the Aleutian campaign, require careful consideration, because they pose critical implications for future island warfare in cold regions. Whether the future island battles involve the Aleutians (to defend critical strategic interests in the North Pacific), the Norway-to-Iceland corridor, or regions near the mineral rich southern hemisphere, we must always be prepared to fight on cold, windy, wet, mountainous islands.

The Army must experiment with equipment to find the best hardware for that environment, clothing and portable shelters that will sustain soldiers in the cruel environment, and weapon and ammunitions mixes (including fuses) that will perform in peaty soil and muskeg. Resupply systems must be independent of the weather and capable of crossing muskeg and snow. Communication systems must be able to defeat the constraints of weather, geography, mineralogical peculiarities, and atmosphere. Finally, joint doctrine should address the implications peculiar to interservice operations on and around cold region islands.

Major Robert L. Maginnis recently completed an assignment as S-3 of the 2d Brigade, 6th Infantry Division, in Alaska. He is now assigned to the Office of the Inspector General, Department of the Army. He is a 1973 graduate of the United States Military Academy and has attended the Naval Postgraduate School.





EDITOR'S NOTE: The following is another in our recurring series of articles reprinted from previous issues of INFANTRY and its predecessors, the INFANTRY SCHOOL QUARTERLY and the MAILING LIST. Slightly edited for use here, it originally appeared in INFAN-

TRY, November-December 1970, pages 8-11.

The late Charles L. Black, who was associate editor and military reporter for the Columbus (Georgia) Enquirer when he wrote this article, was an eyewitness observer of the 1967 war in the Middle

East and had written extensively about it. He had spent more than 30 months in Vietnam during five trips there, and had served as a noncommissioned officer in the U.S. Marine Corps during World War II and the Korean War.

THE MIDDLE EAST A Traveler's Guide

CHARLES L. BLACK

You can find it all in the Middle East, if you shop around for it. Desert heat, sand, soaring mountains, rough plateaus, freezing wind, and snow—even rice paddies down along the Caspian's southern shores.

Let's try it like this for openers: Once I heard a story in that region about a scorpion and a turtle. The story could have happened in Cyprus, Egypt (UAR), Iraq, Israel, Lebanon, Sudan, Syria, Turkey, or Yemen.

The scorpion was an old desert varmint who simply got sick and tired of sand, hills, and steep impassable ravines. So he moved to the grass and palms and took up residence near a handy rock. The rock could have been in the Kingdoms of Iran, Jordan, or Saudi Arabia; the shiekhdoms of Bahrain, Qatar, or the Trucial States; the sultanate of Muscat and Oman, or even the emirate of Kuwait.

Trouble was, the turtle, an old river critter from way back, had sunned on that

rock for many years. When he napped, it put him up out of reach of an old crocodile and a young crocodile. In the course of events, the turtle and the scorpion became bitter enemies. (You'd think in an area equal to the size of the United States that they could find two rocks, wouldn't you? But then, turtles and scorpions aren't all that different from humans.)

One day a brushfire got started in the camel scrub over near some oils wells. The scorpion had seen plenty of these before, but this was a bad one and was headed his way on the wind.

The fire finally set the grass by the river ablaze. The scorpion was not only frightened, but also in a new situation. His experience out in the dunes, rocky hills, and dry plateaus hadn't included fires.

The grass was blazing away fiercely now. The turtle stirred, chose a course across the river secure from crocodiles and prepared to swim to the safe bank.

The frantic scorpion suddenly hailed his old enemy. "Turtle, I can't swim and that fire is going to kill me if you don't help me across this river," he wailed.

The turtle considered this, then gave a great smile. "Damned if it won't," he chuckled and waddled toward the water.

The scorpion leaped off the rock and tugged out his purse.

"Here's my whole fortune. I'll give it to you for one ride across the river," he offered.

"You know, I'd be out of my mind to help you. I have to hold my head out to swim. You'd sting me and I'd die," the turtle said.

Finally the scorpion convinced the turtle that it would be stupid for him to sting his temporary ally—he'd drown. So they started the journey, the scorpion atop the turtle's shell and scared to death of the water at first, the turtle terrified of the passenger.

Then they got accustomed to it and

even liked it. The scorpion, out of gratitude, felt friendly toward the turtle for a change. The turtle enjoyed showing somebody—even an old enemy—his special world and capabilities.

Then about halfway across, lulled by the breeze and water noise, the scorpion looked down and saw the turtle's head, aimed at the safe shore and making a strong ripple. It was such a peaceful moment that he stretched and yawned before he stung the turtle.

The turtle convulsed and sank, not coming up again at all, as turtles do. The scorpion glubbed but went up and down 13 times, as scorpions do.

The old crocodile, who didn't often get big crunchy turtles in this complicated new time, crunched. The young crocodile, who had yet to acquire a taste for peppery things, snapped up the scorpion.

"Uncle, why did the scorpion sting the turtle, when he knew he would drown?" he asked the older crocodile.

The old croc' shrugged his shoulders and cried a few tears, as crocodiles do. "It's the Middle East, " he said.

That's how it is. There are great desert areas, mountain ranges, seacoasts, and plateaus. There are places that would make you think of Vietnam. There are great ancient and crowded cities, cheek by jowl with great, vast, dry, and empty wildernesses.

WHOLE BOOK

To fight there you'll need the whole book. Not just the desert book, and particularly not desert books that faded memory and romantic hindsight seem to have written—something out of a movie about Rommel in which fleets of armor perform vast naval-style maneuvers across a sea of sand. It wasn't that way even in North Africa some days, you know.

When you move from the general theater to the specific fighting pit, you're apt to draw almost anything for terrain. There are other things you can be certain of, though. There will be rules of engagement and it's a good bet they won't allow shooting up friendly oil resources, antiquities, or aqueducts. There probably

will be international press in numbers dwarfing even the press corps of Vietnam. Plan for this factor now. It's time to recognize its implications and military import.

There are more places you can get to only by walking, climbing, or taking a helicopter than there are places you can arrive at by wheels or tracks. You can study caravan maps from Marco Polo's day, or old Roman or Persian road maps, and find just about all the surface corridors in the 1970s that are fit for your caravans and chariots.

Some new concepts of politico-populace-military relationships based on what we've learned—or even on what we haven't learned—in Vietnam should be developed before we even consider operating in the Middle East (or anyplace else) where our forces would be for longer than 30 days.

You will have medical problems along the same order as in Southeast Asia, plus a few local improvements and modifications.

MAINTENANCE

Plan for maintenance problems, as if you were operating around Cam Ranh Bay—but without the bay. Plan as if this were an amphibious operation where logistics is concerned. Take it with you, as much as you can of what you will need the most right after you land. You may have a hard time getting things, except by air.

Be prepared for relatively high quality and sophistication in indigenous air forces, both those of your buddies and those of the local bad guys. Be ready for indigenous ground forces on both sides that can't guarantee to resupply themselves after they've shot up their basic load or eaten what they have in their pockets. Be prepared for armies that, with some few notable exceptions, have had a gulf between the leaders and the led ever since the time of Darius. Be prepared for the venal motive and the political undercurrent.

Above all, remember that the classic fights of the region don't give you the handle to all of the terrain problems you

may face. In 1967 there was not only the Sinai, but also the Golan Heights and Jerusalem. Thinking only about desert problems in relation to this particular theater can give you 40 years in the wilderness instead of six days to objectives.

Here are some general conditions I think will prevail. It will be an allied operation, stacked up against just who you think it will be against. You'll have to be the one to do it quickly. It will probably come when a situation has already exploded and the borders or perimeters are badly bent the wrong way. You'll have to stabilize the situation to start.

It will be baked from one of the following recipes:

- Overt invasion of our friendly country, including large unit operations by a major power, either on its own in areas where the map allows, or in concert with local henchmen.
- A local affair of arms with major powers directly involved, but without their big ground battalions fielded.
- Insurgency inspired and supported from the outside, à la Algeria or a few other places you might call to mind, which caused a threat that couldn't be endured.

AIRBORNE

Everything that happens that isn't airborne will be channelized. This is one certain characteristic of the entire area. From south to north and east to west, the Middle East channels armies, navies, and camel caravans. What geography won't do, economics, politics, and the demands of psychological warfare will do. I repeat, you will be hemmed in by oil, water, and antiquities as effectively as by mountains, loose sand, and logistics.

Armor that is channelized and all alone will meet only death by air. Armor can't operate alone without at least local air superiority and air parity across the board. The side with the best and most effective air support will win, unless the most imaginative and daring use of helicopter mobility is able to pull a near thing out. Airmobility adds a factor to the air business.

The enemy coming against you will



Desert track.

have strong armor columns or task forces attacking along roads. Behind his assault points, which will be traveling as fast and as steadily as possible, he'll have problems. His logistics will be haphazard, stretched out from vulnerable depots along vulnerable roads. His supply will never be even a step ahead of the game, but always a few steps behind it, trying to catch up. He'll have his forward lines of communication cluttered with armor in convoy. Disruptions of his forward progress at the front will be viewed by his logisticians as a secret blessing, allowing them to get matters in hand, and will cause jubilation among his engineers, trying to get roads and bridges put back together.

He will either have air supremacy from preemptive strikes on friendly airfields or, if denied that, air superiority prior to our entry. His efficiency with his air probably won't be as good as that of the friendly force surviving. By our standards it will lack quick responsiveness for close tactical support and will be slower to react to tactical opportunities—but he will have a lot of it.

Get helicopters on hand quickly. They will be your salvation. Get them operational and flying. Put a priority on maintenance people and parts. The same things will break on choppers there that broke in Vietnam. Depend on it, and provide for it at the start.

Now, to regroup this narrative:

Phase one for you is getting on the ground.

Phase two is rescuing the situation. I would commence it as soon as I had the capacity for airmobile operations and enough jets to keep me alive. This will be airmobile almost entirely. Helicopters and jets will have to rescue the wagon train.

Phase three is counteroffensive, naturally. (You did remember to send some tanks after I flew off, didn't you?)

Phases four through thirty-two come when you and your comrades with friendly flags have earned what our leaders think is sufficient to allow representatives to sit down at the table and play diplomatic poker.

Now for specifics:

Artillery raids will be one of your most effective opening bids. Batteries slingloaded into position, shooting at targets of opportunity and slingloaded out of there to another position, will be one of the best tactics you can employ quickly. Aerial field artillery and air cavalry troops will be critical, as will combined tube artillery raids and helicopter antitank attacks.

Airmobile raids on enemy artillery, remembering that his stuff up forward will probably be self-propelled and armored, is something you'll have to do. Thank the Lord He gave you night, too. Use small landing zones, hidden by terrain features, at night. If we can't do better, we'll have

to use the technique of bringing choppers in singly, infiltrating a force to the target area using pathfinder teams, portable beacons, common sense, and uncommon daring to get away with it. Large night air assaults can be done, but they should go into less than obvious landing zones, so that our infantrymen's presence won't be announced before they hit the enemy perimeter.

The airmobile raiders should bangalore and satchel their way into the artillery section of enemy defenses, then spread out and commit damage. Then they must regroup and make it back to a pick-up zone. We should know the book on that kind of foray by now, shouldn't we?

There is a certain amount of history indicating that single helicopters, at least, aren't easy MiG targets if the pilots have practiced some basic tactics. Six helicopters in the Middle East that I know of have survived the experience without a scratch. There is a crying need right now for the Air Force to get with the Army and figure out how to escort helicopters in jet country—night and day. They might consult the same book of experience where the helicopter evasion tactics were written. There are helicopters in this world being escorted by jets now. In fact, the idea has worked out quite well.

Both helicopter tactics and jet tactics need to be written quickly, and training put into effect, or these matters will have

to be learned in the field, on the fly. This is something that should be done even if the entire Middle East lapses into peaceful quiescence and lions lie down with lambs all over the place. It's going to be needed anyplace we face air.

The TOEs of the unit I pitch into my phase one will be created as those units get off the airplanes. One thing we'll need immediately is a lot of gunships, a lot of scout ships, and a lot of Chinooks for logistics and howitzer lifts. Air cavalry squadrons, aerial field artillery, Chinooks, and 105s have a high priority right behind the people who grab the airhead itself. After that, I'd like real airmobile divisions with their full capabilities.

AIRBORNE DROPS

Airborne? If you have to—if you are willing to write off those you drop and the reason is great enough for the price—then airborne drops could be useful in phase one. It would make up for either a delay in getting lift ships into the operation or in getting airmobile units loose from whatever bear they had by the tail when the whistle blew. Smaller airborne ventures to secure artillery landing zones for fire raids, to grab critical terrain and stall an enemy until air can get at him or more force gathers and helilifts there, go ahead. Just know the risks, for they'll have to make it on their own with what you can drop them.

I don't see any crying need for any large headquarters to go flouncing off into the boondocks too quickly, not with communications as they are now and with command and control choppers around. I do see a great need, though, for somebody to open up those dusty old air assault test files and learn how to jump brigade headquarters around and about. This implies that a lot of habits picked up in Vietnam are just bad habits.

Everything must move, quickly, constantly, always purposefully, and just as long as machinery and men can stand it. Helicopters will have to fly until they break and men move and fight until they drop or the enemy is diverted, disorganized, and stalled. The enemy's rear areas, lines of communication, artillery,

convoys—these must be constantly hammered at and harassed.

So you finally stall him. Bring on Phase three, the counteroffensive. You should have a grasp of the problems confronting you by now, if you're in charge. You're not coming into this completely green. We've had a few pieces of information about the region over the years, and we've fought more than most armies have fought.

You'll see that those historical corridors are important. Bridges and passes pinch at them. Some ridges dominate them. But these aren't the target. These are simply useful things nature tossed your way to get at the target, or nuisances to overcome. The target is the other guy, his entire organization. How do you throw him into confusion, kill him, or deny him supplies, retreat and respite? That's your mission. There must be no delay, no pause, no breathing time for the enemy.

MECHANIZED INFANTRY

Mechanized infantry will be valuable and useful if you have air cover and firepower to go with it. In the kind of opposition you'll meet and the kind of channelizing terrain I keep emphasizing, that means night work and punching in on narrow fronts against his night defenses.

Enemy artillery can be taken out by helicopter raids, your own artillery, and air support. Helicopter raids were used by the Israelis time and again to accomplish this. Men infiltrating under cover of terrain and darkness to a landing zone manned by pathfinders, undertaking an attack along routes scouted by patrols or air, assaulting a position with almost exactly the techniques employed by enemy sappers in Vietnam, blowing through defenses on a narrow front, fanning out inside, pulling out before the mechanized infantry-armor attack went in, has worked.

This is how I think we'll make a counteroffensive work as a complete air-ground combined arms team. The task forces will operate essentially as aircraft carriers. Jets will concentrate on keeping them alive by providing close support as

well as air cover. Helicopters will operate out of these columns, as if from aircraft carriers, finding, fixing, disorganizing the enemy in front, and screening the column's flanks. The armor task force will be a kind of self-contained team, able to give support to the choppers, react to the airmobile team's contacts, or exploit its own affairs—always covered by air, resupplied by air and moving at the best possible speed toward its objectives, for as long as it can roll and fly.

But I plead again for speed in reaching the conclusion to our part of this combat, on getting our allies and well-wishers up to take over the objectives when we have grabbed them and to form the stabilized front that will mark the end of the big fight and the start of the small fight and the big diplomacy.

DOMESTIC SUPPORT

We won't have the resources for an all-out and overwhelming operation. We won't have domestic support for a protracted engagement. My ideas about the Middle East are calculated as much as anything else to serve what I believe practical and possible. Our long trial in Vietnam has given us the experience necessary to fight anywhere—but it has also heated a domestic griddle so that we have to be careful about which part of it we land on.

To wind up this opus, let's consider some principles that I think will apply to more than just Vietnam or the Middle East and that could relate to any of the potential trouble-spots facing the Army:

Whenever it appears fairly obvious that there might be a call on Army services—and that could be anytime from one to 10 years before somebody really blows the whistle—our leaders and soldiers should carefully and deliberately study, plan, organize, and train.

When the whistle blows, we should use speed and aggressiveness to deploy, engage, achieve. . . and LEAVE.

But then, there are all kinds of contingencies and restrictions that might be placed upon you, and that's a story for another book, isn't it?

TRAINING NOTES



Armor in DESERT SHIELD

MICHAEL R. JACOBSON

Since the beginning of Operation DESERT SHIELD in August 1990, the U.S. Army and its allies have been faced with a new threat, the Iraqi Army. To meet that threat effectively, combat arms soldiers, attack helicopter pilots, and close air support pilots need to become familiar with the armored organizations and vehicles of the Iraqi Army.

They also need to become familiar with the vehicles our allies use, because several of them have the same equipment the Iraqis have. In fact, so do we — the Iraqis have M113 armored personnel carriers (APCs) and M901 improved TOW vehicles (ITVs) that they captured from Kuwait. Obviously, then, identifying vehicles and determining the nationality of forces is vital if we are to prevent casualties among friendly forces.

The Iraqi Army has more than 5,500 tanks and more than 9,000 light armored vehicles, including Soviet, British, Brazilian, Chinese, French, and U.S. vehicles. A list of Iraqi armored vehicles is shown in Table 1 and the data on their capabilities in Tables 2 and 3.

The Iraqi ground forces are organized into regular army units and elite Republican Guards units, and there is a considerable difference in organization between the two. The army has ten armored and mechanized infantry divisions, and

the Republican Guards have at least three armored divisions.

Iraqi armored divisions are estimated to have between 10,000 and 12,000 soldiers, between 250 and 300 tanks, and about 250 infantry fighting vehicles (IFVs) or APCs. An armored division consists of two armored brigades and one mechanized infantry brigade, plus supporting artillery, air defense artillery and, in some divisions, surface-to-surface missile units. A mechanized infantry division has two mechanized infantry brigades and one armored brigade, plus similar supporting units.

ORGANIZATION

An Iraqi regular army armored brigade (Figure 1) is composed of three tank battalions of 40 to 45 tanks each and one mechanized infantry battalion of 45 to 50 IFVs and APCs. An army mechanized infantry brigade (Figure 2) has three mechanized infantry battalions and one tank battalion with 44 tanks. Each battalion is organized into three line companies.

A Republican Guard brigade has more tanks (55 to 60) in each armored battalion, which is organized into four line companies. Each of its mechanized in-

fantry battalions has three line companies. A Guard armored brigade (Figure 3) has two organic artillery battalions, each with 18 self-propelled 155mm pieces, while a Guard mechanized infantry brigade (Figure 4) has two organic artillery batteries, each with six 155mm pieces. The Republican Guard units that spearheaded the attack into Kuwait probably had the best equipment, including T-72 and T-72M1 tanks and BMP-1 and BMP-2 IFVs.

In addition to their own equipment, the Iraqis captured most of the Kuwaiti Army's armored vehicles, which included 165 Chieftain tanks, 90 Ferret reconnaissance vehicles, Scorpion reconnaissance vehicles, 50 BMP-2 IFVs, 130 Saracen APCs, 200 M113 APCs, Commando V-150 and V-300 armored vehicles, and 56 M901 improved TOW vehicles (ITVs).

The Iraqis have also modified some of their armored vehicles, and have upgraded their T-55 tanks and several other vehicles. For example, they have added applique armor on the hull sides of the BMP-1 that will protect it against 12.7mm and 14.5mm armor piercing (AP) rounds at 200 meters, and are replacing the 14.5mm machinegun on the BRDM-2 with a 23mm cannon. The Iraqis have modified MT-LBs for use as mortar plat-

forms; one version has a 120mm mortar mounted inside the carrier, and a second has four externally mounted 120mm mortars.

A short description of some of these armored vehicles follows:

T-72 Medium Tank. The T-72, including the T-72M1, is the most sophisticated tank Iraq has. It is armed with a 125mm smoothbore main gun, a 7.62mm coaxial machinegun, and a 12.7mm anti-aircraft machinegun. It has greater mobility, better armor protection, and greater firepower than the T-62. It has the same integral engine smoke-generating system as the earlier T-54, T-55, and T-62 tanks, and has a smoke grenade launcher. The T-72 is equipped with a collective NBC filtration and overpressure protection system. The advantage of these systems is that the crew members are not required to wear their protective masks or clothing when operating in a chemical environment. A T-72 tank is equipped with an integral laser rangefinder and an automatic loader, and it has a three-man crew.

Type 59-II. The Chinese Type 59-II tank, similar in appearance to the Soviet T-54 tank, is armed with a 105mm cannon, a 7.62mm coaxial machinegun, a 7.62mm bow machinegun, and a 12.7mm anti-aircraft machinegun, and it can be equipped with side skirts and an NBC protection system. It has a four-man crew.

Type 69-II. The Chinese Type 69-II tank, one of the most modern Chinese tanks, is fitted with an advanced fire control system including an integrated laser rangefinder and infrared night vision. It is armed with a 100mm cannon, a 7.62mm coaxial machinegun, a 7.62mm bow machinegun, and a 12.7mm anti-aircraft machinegun. The tank is equipped with side skirts and a complete NBC protection system. It has a four-man crew.

T-55 Modified Tank. Iraqi modifications to their T-55 tanks include installing a 125mm smoothbore cannon, a new passive night sight, add-on applique armor, four smoke grenade launchers on each side of the turret, and track skirts.

EE-3. The EE-3 *Jararaca* is a Brazilian four-wheeled scout vehicle. It is normally armed with a 12.7mm or .50 caliber machinegun, but it can be armed

with a 20mm cannon, a 60mm gun mortar, a 106mm recoilless rifle, or a Milan antitank guided missile (ATGM). It has a three-man crew.

EE-9. The EE-9 *Cascavel* (Rattlesnake) is a Brazilian six-wheeled armored car that mounts a 90mm cannon and a 7.62mm coaxial machinegun. Its basic ammunition load is 20 rounds of 90mm and 2,000 rounds of 7.62mm. It is protected in front against 12.7mm ammuni-

tion and on the side and rear against small arms fire and fragments. It has a three-man crew.

ERC-90. The ERC-90 is a French six-wheeled reconnaissance vehicle armed with a 90mm cannon and a 7.62mm coaxial machinegun. Its basic load of ammunition is 20 rounds of 90mm and 2,000 rounds of 7.62mm. The vehicle is equipped with a laser rangefinder and four 80mm smoke grenade launchers,

IRAQI ARMOR

	ORIGIN	NUMBER
MAIN BATTLE TANKS		
		5,500-5,800
Type 59-II (T-54A)	China	500
Type 69-II (IMP Type 59)	China	1,000
M-77 (T-55)	Romania	60
Chieftain Mk 3/5	UK	30
T-54/55	USSR	1,400
T-62	USSR	1,600
T-72/T-72M1	USSR	1,000
LIGHT TANKS		
PT-76	USSR	100
RECONNAISSANCE VEHICLES		
		2,000
EE-3 <i>Jararaca</i>	Brazil	300
EE-9 <i>Cascavel</i>	Brazil	200
ERC-90/1	France	
Panhard AML-60-7, AML-90	France	300
FUG-70 (D-944)	Hungary	
Ferret	UK	
Scorpion	UK	
BRDM-2	USSR	
INFANTRY FIGHTING VEHICLES		
BMP-1	Czechoslovakia	1,000
BMP-2	USSR	
ARMORED PERSONNEL CARRIERS		
		7,100
EE-11 <i>Urutu</i>	Brazil	
Type 531	China	
OT-62	Czechoslovakia	
OT-64	Czechoslovakia	
Walid	Egypt	
Panhard M3	France	123
Saracen	UK	
M113A1	USA	
MT-LB	USSR	
BTR-40	USSR	
BTR-50	USSR	
BTR-60	USSR	
SELF-PROPELLED ANTITANK GUNS/ATGMs		
Steyr SK 105 (TD)	Austria	100
SU-100 (SPG)	USSR	90
VCR-TH (HOT)	France	100
BRDM-2 (Sagger)	USSR	
BRDM-2 (Spandrel)	USSR	

(Data compiled from *Jane's Armour and Artillery*, 1989-1990, *Military Balance*, 1989-1990, and the *Middle East Military Balance* 1988-1989.)

Table 1

and is protected against 7.62mm ball ammunition at point blank range. The optional subsystems available for this vehicle include NBC protection and air conditioning. Two variants have been produced: the ERC-90 *Sagaie* and the ERC-90 Lynx. The vehicle has a three-man crew.

AML. The AML series of French four-wheeled armored cars are protected against 7.62mm armor piercing (AP) ammunition frontally and against 7.62mm ball ammunition elsewhere at point blank range. Optional subsystems available for the vehicles include air conditioning. They have three-man crews.

The AML 60-7 is armed with a 60mm gun-mortar and two 7.62mm machineguns. The gun-mortar has an effective direct fire range of 300 meters and an indirect fire range of 500 to 2,600 meters. The basic load is 43 mortar rounds and 3,800 7.62mm rounds.

The AML-90 is armed with a 90mm cannon, a 7.62mm coaxial machinegun, a 7.62mm pintle-mounted machinegun, and two 80mm smoke grenade launchers. The basic load consists of 20 rounds of 90mm and 2,000 rounds of 7.62mm ammunition.

Scorpion. The British Scorpion combat reconnaissance vehicle is tracked and equipped with a 76mm cannon and a 7.62mm machinegun. The basic load is 40 rounds of 76mm and 3,000 rounds of 7.62mm, and it is equipped with six or eight 66mm smoke grenade launchers. The vehicle is designed to protect against 14.5mm AP projectiles in front and 7.62mm rounds elsewhere. The vehicle's NBC collective protection system is connected to the individual's mask. The Scorpion has a three-man crew.

FUG-70. The FUG-70 is a Hungarian four-wheeled armored APC similar in appearance to a BRDM-2. It is armed with either a 14.5mm machinegun or 23mm cannon and a 7.62mm machinegun, and has an NBC protection system. It has a crew of two and can carry six or seven infantrymen or scouts.

Ferret. The Ferret is a British four-wheeled armored scout car. Dual 7.62mm machineguns are located in the turret and three smoke grenade launchers are mounted on each side of the hull. It has

TANK CAPABILITIES			
NOMENCLATURE	WEAPONS	WEAPON RANGE	BASIC LOAD
T-72/T-72M1	125mm	2,000m	40
	12.7mm	1,500m	300
	7.62mm	1,000m	2,000
Type 59-II (T-54A)	105mm	1,800m	34
	12.7mm	1,500m	500
	7.62mm	1,000m	3,500
Type 69-II	100mm	1,500m	34
	12.7mm	1,500m	500
	7.62mm	1,000m	3,400
M-77 (T-55)	100mm	1,500m	43
	12.7mm	1,500m	500
	7.62mm	1,000m	3,500
Chieftain Mk 3/5	120mm	2,000m	53/64
	12.7mm	1,500m	300
	7.62mm	900m	6,000
T-54/55	100mm	1,500m	34/43
	12.7mm	1,500m	250/500
	7.62mm	1,000m	3,500
T-54/55 (Modified)	125mm	2,000m	Unknown
	12.7mm	1,500m	Unknown
	7.62mm	1,000m	Unknown
T-62	115mm	1,600m	40
	12.7mm	1,500m	250
	7.62mm	1,000m	2,000
PT-76	76mm	650m	40
	12.7mm	1,500m	250
	7.62mm	1,000m	1,000
SK-105	105mm	2,700m	42
	7.62mm	1,000m	2,000
SU-100	100mm	1,500m	34

Table 2

a two-man crew.

EE-11. The EE-11 *Urutu*, a Brazilian six-wheeled APC, is normally equipped with a 12.7mm or .50 caliber machinegun, but it can be armed with a variety of weapons including a 20mm or 90mm cannon or a 60mm gun mortar. It is protected against 12.7mm ammunition in front and against small arms fire and fragments in the sides and rear. It can be equipped with smoke grenade launchers on either side of the turret. It has a one-man crew (driver) and can carry 13 infantrymen. Iraq also has an armored recovery version of the EE-11 that is equipped with a front mounted winch, a hydraulic crane, and specialized tools and equipment.

Type 531. The Type 531, formally called the Type 63 or M-1967, is a Chinese tracked APC that is equipped with a 12.7mm machinegun and a basic load of 1,120 rounds. It has one firing port on each side and another in the rear

of the vehicle. It has a crew of four and can carry ten infantrymen.

OT-62. The OT-62 is a Czechoslovakian copy of the Soviet BTR-50PK tracked APC. It is armed with 14.5mm and 7.62mm machineguns and has firing ports on the sides and an NBC overpressure protection system. It has a two-man crew and can carry up to 18 infantrymen.

OT-64. The OT-64 is a Czechoslovakian eight-wheeled APC armed with 14.5mm and 7.62mm machineguns in the turret. It has firing ports on the sides, hatches, and rear of the vehicle. Some models have AT-3 Sagger antitank guided missiles (ATGMs) mounted on each side of the turret. The vehicle has an NBC overpressure protection system. It has a two-man crew and can carry between 15 and 18 infantrymen.

BTR-40. The BTR-40 is a Soviet four-wheeled APC normally armed with 7.62mm machineguns. An antiaircraft version of this vehicle is armed with twin

OTHER ARMORED VEHICLES

NOMENCLATURE	ORIGIN	WEAPONS	WEAPON RANGE
RECONNAISSANCE VEHICLES			
EE-3 (<i>Jararaca</i>)	Brazil	12.7mm 20mm 60mm	1,500m 1,500m 2,600m
EE-9 (<i>Cascavel</i>)	Brazil	90mm 12.7mm 7.62mm	1,500m 1,000m 1,000m
AML-60/7	France	60mm mortar 7.62mm	2,600m 900m
AML-90	France	90mm 7.62mm	1,000m 900m
ERC-90/1	France	90mm 7.62mm	1,000m 900m
FUG-70	Hungary	14.5mm or 23mm 7.62mm	2,000m 1,000m 900m
Ferret	UK	7.62mm	900m
Scorpion	UK	76mm 7.62mm	1,600m 900m
BRDM-2	USSR	14.5mm or 23mm 7.62mm	2,000m 1,000m 1,000m
INFANTRY FIGHTING VEHICLES			
BMP-1	USSR/ Czechoslovakia	73mm AT-3 7.62mm	800m 3,000m 1,000m
BMP-2	USSR	30mm 7.62mm AT-4 AT-5	1,700m 1,000m 2,000m- 2,500m 4,000m
WHEELED ARMORED PERSONNEL CARRIERS			
EE-11 <i>Urutu</i>	Brazil	12.7mm	1,500m
OT-64	Czechoslovakia	14.5mm 7.62mm AT-3	2,000m 1,000m 3,000m
<i>Walid</i>	Egypt	7.62mm	900m
<i>Panhard M3</i>	France	20mm 7.62mm	1,500m 1,000m
Saracen	UK	7.62mm	900m
BTR-40	USSR	14.5mm 7.62mm	2,000m 1,000m
TRACKED ARMORED PERSONNEL CARRIERS			
YW 531 (Type 63)	China	12.7mm	1,500m
OT-62C	Czechoslovakia	14.5mm 7.62mm	2,000m 1,000m
M113	US	12.7mm	1,500m
BTR-50	USSR	14.5mm	2,000m
MT-LB	USSR	7.62mm	1,000m

Table 3

14.5mm machineguns. It has a two-man crew and can carry eight infantrymen.

Walid. The *Walid* is an Egyptian four-wheeled APC similar in appearance to the Soviet BTR-40. The vehicle has an open-topped troop compartment and has three firing ports on each side of the vehicle and two in the rear. The basic model has a pintle mounted 7.62mm machine-

gun. It has a crew of two and can carry eight to ten infantrymen.

Panhard M3. The *Panhard* is a French four-wheeled APC with twin 7.62mm machineguns mounted in the turret. Optional subsystems for this vehicle include air conditioning and smoke grenade launchers. It has a two-man crew and can carry ten infantrymen.

Saracen. The Saracen is a British six-wheeled APC that has one 7.62mm machinegun mounted in the turret and another on a ring mount at the rear of the vehicle. There are three firing ports on each side of the vehicle and one in the rear door. Three smoke grenade launchers are mounted on each of the front fenders. It has a two-man crew and can carry ten infantrymen.

SK-105. The SK-105 is an Austrian tank destroyer, also referred to as the *Kuerassier*. The French AMX-13 turret was mounted to an Austrian-modified 4K4FA APC. The 105mm cannon is loaded from two revolving drum magazines in the turret bustle. The vehicle has a 42-round basic load and is equipped with a laser rangefinder, a 7.62mm coaxial machinegun, and six 80mm smoke grenade launchers. The vehicle is protected against 14.5mm AP rounds at 300 meters over the frontal 60-degree arc. It has a three-man crew.

VCR-TH. The VCR-TH is a French six-wheeled VCR antitank vehicle fitted with a HOT turret mount. The vehicle has four HOT ATGMs with a range of 4,000 meters ready to fire and another ten ATGMs in the hull. The vehicle has a remote control 7.62mm machinegun mounted in the rear and two smoke grenade launchers on each front fender. It has a four-man crew.

According to the *Middle East Military Balance, 1988-89*, Iraq has 2,800 armored vehicle truck transporters, also referred to as heavy equipment transporters (HETs). These transporters enable the Iraqis to move their armored forces around the battlefield. Some of the HETs are West German and others may include the Soviet MAZ-537G.

Additional information that units can use to improve their knowledge of Iraqi armor is available in the following sources:

- FM 1-402, *Aviator's Recognition Manual*, dated August 1984, provides a good selection of ground equipment and aircraft.

- *Identifying The Iraqi Threat and How They Fight*, dated August 1990, produced by the U.S. Army Intelligence Agency, Washington, D.C. 20310-1015, gives an excellent summary of Iraqi or-

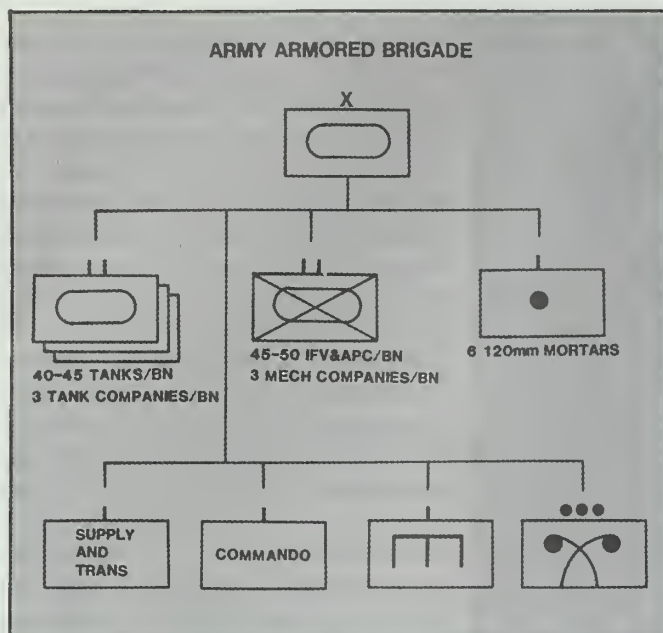


Figure 1

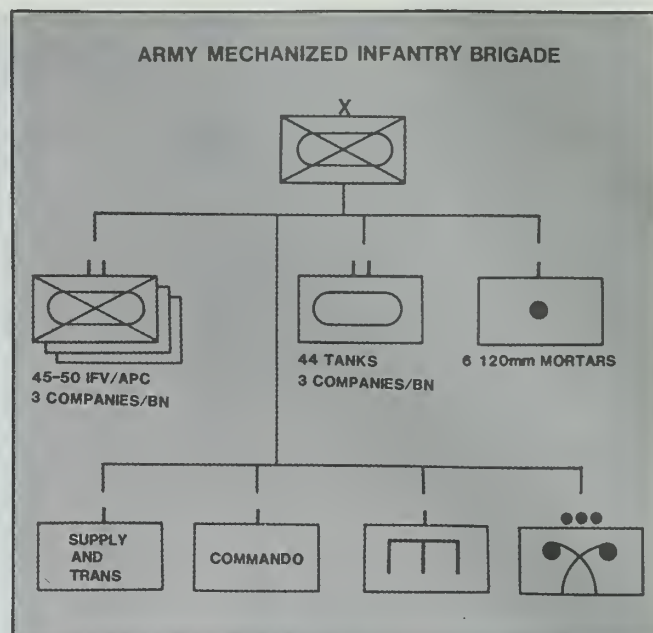


Figure 2

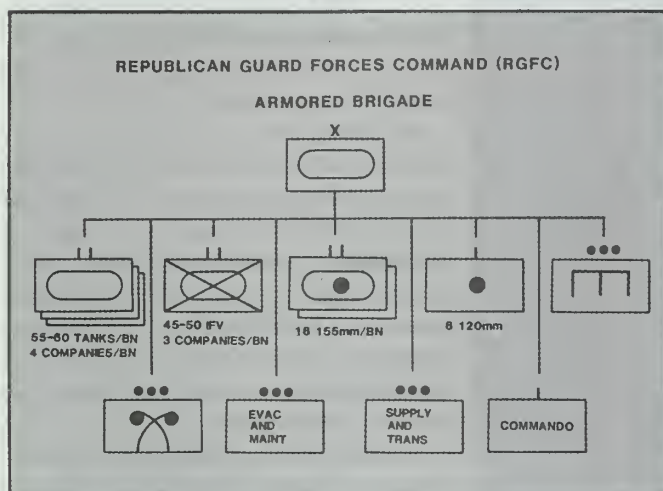


Figure 3

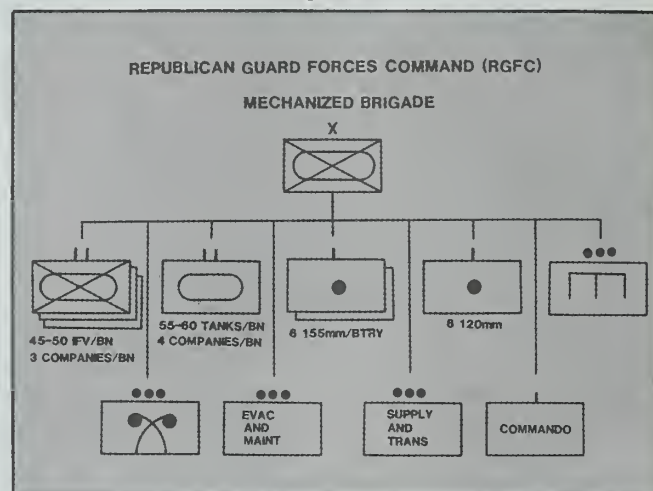


Figure 4

ganizations, tactics, and equipment.

- FM 34-72, Intelligence Training Module Middle East Environment (Coordinating Draft, August 1985, ATSO-SO, Fort Huachuca, Arizona 85613-7000) has a chapter on each Middle Eastern country including its army and its customs. Only the coordinating draft is available.

- FM 100-2-3, Soviet Army Operations, Organizations and Equipment (Approved Final Draft, dated March 1989, with changes dated August 1990), U.S. Combined Arms Center, ATTN: ATZL-CST-T, Fort Leavenworth, Kansas 66027-5000) gives up-to-date information on Soviet equipment.

- TC 90-16, Antiarmor Operations on

the Integrated Battlefield (Coordinating Draft, dated June 1988, written by U.S. Army Command and General Staff College, ATTN: ATZL-SWT-C, Fort Leavenworth, Kansas 66027-5000) is a single classified source for employing U.S. antiarmor weapons. Units should retain their copies of the coordinating draft, because there is no plan at the present time to publish it in final form.

- DA Pamphlet 550-31, Iraq: A Country Study (Fourth Edition, 1990) is a good source of information on Iraq.

- Posters produced by the Armor School's Threat Manager include one on Iraqi armor and one on Chinese armor. These posters can be ordered from the Fort Knox Army Wide Training Support

Center, AUTOVON 464-2987.

- GTA 17-2-13, Armored Vehicle Recognition Cards, and GTA 44-2-6, Aircraft Recognition Cards, are pocket-size decks of flash cards for vehicle and aircraft recognition. They are stocked by local Training Support Centers (TSCs).

- Posters called DESERT SHIELD, produced by FORSCOM should be available through local Training Support Centers (TSCs).

In addition to these sources, an excellent article, "Iraqi Modifications to Soviet Armoured Vehicles," by Christopher F. Foss, appears in the October 1989 issue of *Jane's Soviet Intelligence Review*.

Aside from Iraqi vehicles, there are



T-54/T-55/Type 59 Tank



T-62 Tank



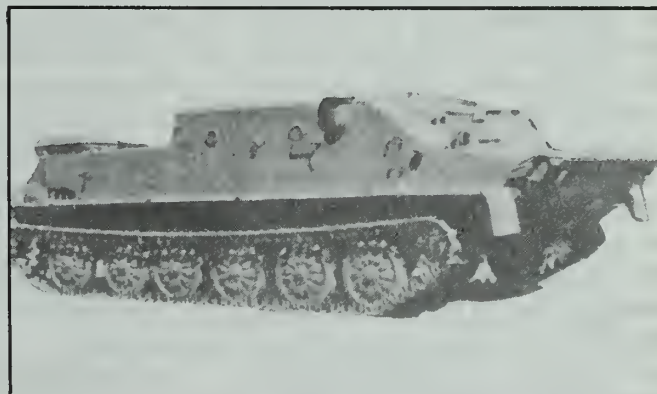
T-72M1 Tank



PT-76 Reconnaissance Tank



BMP Infantry Combat Vehicle



BTR-50 PK Armored Personnel Carrier

many other armored vehicles in the Middle East that our forces are not familiar with. Among our allies, for example, the Saudi Arabian Army has AMX-30S and M60A1 and A3 tanks, and their light armored vehicles include AMX-10P IFVs, M113 APCs, Commando V-150 armored cars, Scorpion reconnaissance vehicles, AML-60 and AML-90 armored cars, and Panhard M3 APCs.

Additionally, the U.S. Marine Corps units in DESERT SHIELD have several vehicles most U.S. Army soldiers have not had an opportunity to see. These in-

clude the light armored vehicle (LAV) and the AAV-TP7 tracked amphibious assault vehicle. The LAV comes in several versions, including a 25mm cannon version and an ITV version. The eight-wheeled LAV can easily be confused with the eight-wheeled Iraqi BTR-60 and the OT-64 vehicles.

Resources are available that will help improve the vehicle identification skills of our soldiers, and commanders need to make those resources available. It is vital that each soldier learn which armored vehicles the enemy units use and which

the friendly units use. Our soldiers should also know that while the Iraqi ground forces have a large number of Soviet and East European vehicles, they are not organized like the Soviet ground forces, nor do they fight exactly like the Soviets.

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Water Resupply and Heat Casualty Prevention

LIEUTENANT COLONEL KARL W. EIKENBERRY

Non-mechanized infantry units operating in tropical climates must pay particular attention to water resupply and heat casualties. Not only do footmobile soldiers generally consume more water than mechanized infantrymen, they often have fewer resupply and medical evacuation resources to depend upon.

During a joint readiness exercise conducted in Puerto Rico in May 1990, two light infantry battalions of the 2d Brigade, 10th Mountain Division, had an opportunity to gain some valuable experience in planning and conducting water resupply operations and in treating heat casualties in a challenging combat environment.

The exercise culminated in a joint Marine Corps amphibious landing and an Army air assault against a light infantry opposing force (OPFOR) defending Vieques Island, 10 kilometers off Puerto Rico's east coast. One 10th Division battalion served as part of the air assault task force while its sister battalion acted as the OPFOR.

Certain characteristics of the area of operations led the commanders and staffs of both battalions to concentrate on water resupply during their planning. The daily mean temperature on the island in May varied between 75 and 86 degrees Fahrenheit with extreme highs reaching above 90 degrees, and the relative humidity raising the apparent temperature even further. The skies were generally clear, which intensified the sun's effects. Moreover, much of the area consisted of rocky barren hills that afforded the soldiers little protection from solar rays.

Additionally, dismounted movement was strenuous because of the dense vegetation in the low ground, which included numerous mesquite bushes with two-inch thorns. There was also considerable deadfall on the island from previous hurricanes in the area. Finally, the establishment of an early morning H-hour implied that most of the combat operations would occur during daylight, which would increase the effects of the climate and the terrain on water consumption.

The commander of the air assault task force, in an effort to reduce his soldiers' loads, directed that they carry only the combat patrol pack of the large field pack (Alpine Lowe rucksack). But each man carried six quarts of water — two one-quart canteens on his load-bearing vest (LBV) and two two-quart canteens in his assault pack.

Different logistic courses of action were

developed to deal with water resupply. Enough UH-60 helicopters were available to the battalion initially to slingload two HMMWVs (high mobility multipurpose wheeled vehicles) with the air assault force. The commander elected to use one of these vehicles for command, control, and communications and the other for water and Class V resupply. Both HMMWVs were fully loaded with five-gallon cans to provide the battalion's support platoon with an initial resupply source. Since a resupply operation was scheduled for H+7 hours, slingloading additional quantities of water during the air assault was not considered necessary.

The battalion's mission was to move from its landing zone to clear sectors and occupy blocking positions three to five kilometers away. The company commanders and platoon leaders moved their forces at a steady but moderate pace to



avoid unnecessary heat casualties. Nevertheless, enemy contacts led to strenuous physical exertion, and a small number of soldiers in each unit exhibited heat injury symptoms. The chain of command effectively used combat lifesavers to administer intravenous (IV) solutions and rapidly stabilized heat casualties. Although most of the soldiers recovered quickly and returned to duty, several had to be evacuated by the support platoon's HMMWV to the battalion aid station near the landing zone. There, the battalion physician's assistant supervised medical treatment and monitored the patients to determine whether air evacuation would be required. Eventually, aeromedical evacuation was requested for one casualty, but his condition had stabilized by the time the helicopter arrived and his evacuation was not necessary. Overall, although some 15 soldiers displayed heat injury symptoms, the use of combat lifesavers and an emphasis on medical treatment at the lowest level saved combat power and precluded medical evacuation.

As scheduled, at H+7, UH-60s delivered several 55-gallon collapsible blivets filled with water. The timing was excellent, since most of the soldiers had consumed four to five quarts of water by then. Although efforts to keep the water cool at the logistic base had not been effective, the support platoon quickly distributed five-gallon cans to the dispersed platoons in its HMMWV, and by dusk every soldier was again carrying six quarts of water. The tempo of operations then slowed, and the battalion encountered no further water resupply or heat injury problems.

Meanwhile, the OPFOR battalion, whose mission was to defend the island from widely dispersed positions against an attack, had about five days to prepare its defenses. Because of his opponent's overwhelming superiority in firepower, the OPFOR battalion commander knew he could not count on vehicular resupply once the battle began. Furthermore, he realized that his units' movements would be limited during daylight hours if they were to avoid hostile tactical air and attack helicopters.

Each of his soldiers carried four quarts of water, two one-quart canteens on his LBV and one two-quart canteen in his

combat patrol pack. As with the soldiers in their sister battalion, they did not carry rucksacks.

Upon arriving on the island, the commander directed his units to prepare positions and establish obstacles at night and to "go to ground" during the day. Consequently, the battalion maintained excellent operational security as its units were difficult to spot; furthermore, water consumption was reduced and work was more efficient.

The wide dispersal of the battalion posed unique water resupply problems, though, because most of the squad and platoon defensive positions were not accessible by road. During the five-day preparation phase, the soldiers made extensive use of liquid packs with water bags. (A liquid pack is a 20-liter, or 5.28-gallon, portable water container that can be carried like a rucksack.) The support platoon transported water in five-gallon cans to points along the roads and trails, from which the infantrymen transferred the water to liquid packs and carried them to their positions. Small units also maintained five-gallon cans at their locations as a reserve stock.

The OPFOR battalion relied upon caches as its primary method of resupply. Class I and V stocks were prepared and carefully concealed throughout the area of operations. Platoons and squads were carefully briefed on the locations of the caches and thoroughly rehearsed on the resupply plans.

Despite the intensity of the first day of combat operations when the battalion was attacked by two brigade-sized elements, no OPFOR soldiers ran out of water. By making sure that their maneuvering was consistent with the location of the caches, the junior leaders kept their soldiers both on the offensive and resupplied. In this battalion, too, combat lifesavers immediately administered IVs to soldiers who showed signs of heat exhaustion, and the unit suffered no significant casualties.

From the after action reviews (AARs) conducted at the end of the exercise, it was evident that a detailed consideration of the conditions of METT-T (mission, enemy, terrain, troops, and time) and an emphasis on logistic planning in both battalions had contributed substantially to the success of

the operations. By reducing the soldiers' loads, increasing the amount of water each man carried, and factoring in the effects of the climate on performance when developing work and maneuver plans, the leaders were able to conserve their units' fighting power. Staff officers displayed initiative and imagination when planning resupply operations, continually coordinating with commanders to develop realistic anticipated water consumption rates. The leaders did feel, however, that more attention should have been paid to cooling the water, because soldiers are more likely to drink cold fluids.

It also became clear during the AARs that the combat lifesaver program had been validated. Combat lifesavers in both battalions had administered numerous IVs and had helped the brigade avoid any serious heat casualties. In future operations, since light infantry squads are frequently dispersed and may be some distance from a platoon medic, combat lifesavers can bridge the gap between buddy-aid and combat medic treatment.

It was also brought to light that the supplies of Ringer's lactated (IV) solution carried by the medics and combat lifesavers were barely adequate. In hot, humid climates, every infantryman must carry at least one package if a unit is to sustain itself without resupply for an extended period.

Non-mechanized infantry forces based in the continental United States must be prepared to deploy immediately to tropical areas, fight when they arrive, and win. If commanders emphasize water resupply and heat injury prevention during the planning process, and if they carefully weigh logistic constraints in developing their concept of the operation, they and their units will be far better able to accomplish their missions.

Lieutenant Colonel Karl W. Eikenberry commands the 2d Battalion, 87th Infantry, 10th Mountain Division (Light Infantry), at Fort Drum. He is a 1973 graduate of the United States Military Academy and holds advanced degrees from Harvard University and Nanjing University. He has served in airborne, Ranger, mechanized, and light infantry units and as assistant Army attache to the People's Republic of China.

The Altimeter

LIEUTENANT COLONEL WILLIAM MENNING

We infantrymen pride ourselves on being expert battlefield navigators. Generally, we use a map and a compass, but there is another tool, the altimeter, that can also be useful.

One company, for example, had completed a portion of a movement to contact through rugged snow-covered mountainous terrain in mid-January and was eagerly awaiting resupply for its fatigued and chilled troops. The company had been told its logistical package was in the area. Darkness arrived with the company reporting it could hear the support vehicle in the distance and was sending a carrying party to try to find it. After an hour, the party had not managed to find the vehicle although they could hear its engine.

After increasingly urgent radio traffic between the battalion and the company, a check of the company's altimeter revealed that the company's location was nearly 600 feet higher than its assigned objective. Since a 60mm mortar platoon was conducting an illumination ARTEP mission in the immediate area, the battalion notified the company to watch for the burst and call back the magnetic azimuth from its position. A quick grid-to-magnetic angle conversion and resection from the known bursting point of the illumination round produced a line on the map that crossed the contour line the company had reported as its elevation. The company proved to be more than two kilometers from its supposed location.

Using the altimeter had saved several hours in reestablishing contact with the company. And, of course, using it earlier

would have saved the company the embarrassing error in the first place.

Civilian mountaineers have long relied on the altimeter as a vital navigational aid, and modern manufacturing processes have resulted in an amazingly durable precision instrument. The heart of an altimeter is a metallic vacuum chamber that expands or contracts in response to changes in outside air pressure. Over an elevation change of 15,000 feet, the vacuum chamber expands only about 0.75mm, and this expansion is translated through a gear mechanism to the in-

dicator needle. The change in outside air pressure may be either from changes in elevation, since air pressure decreases as we gain altitude, or from changes due to the passage of weather systems. Most altimeters also have a scale that shows the air pressure in millibars or inches of mercury, thus making it useful as a normal barometer as well as an altimeter. An altimeter, then, is little more than a barometer that has been calibrated to show changes in elevation.

The Thommen altimeter, currently in service with the 3d Battalion, 172d In-

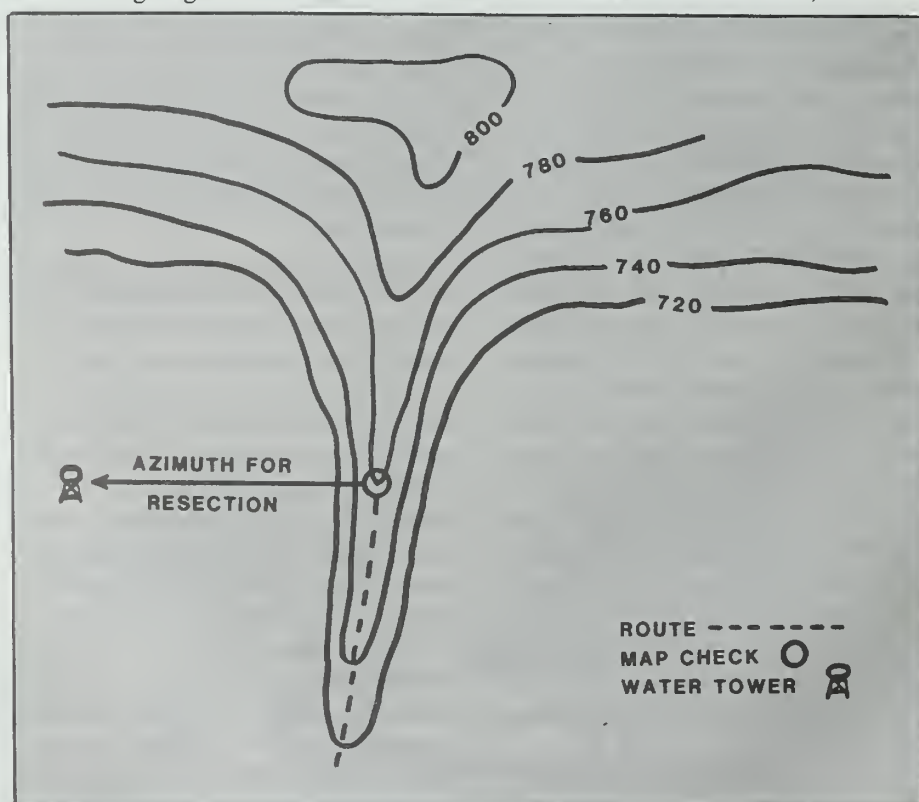


Figure 1

fantry (Mountain), Vermont National Guard, is accurate to within ten meters. Since many 1:50,000 scale military maps have a contour interval of ten meters, this altimeter provides a reading that is accurate to within one contour interval. The smaller the interval, of course, the more accurately the altimeter will fix a position.

Several examples will illustrate situations in which the altimeter can be useful to an infantryman, not just in mountainous terrain, but also in rolling wooded terrain:

- Picture yourself ascending a path on a narrow ridge. You decide to do a map check using your altimeter while your more traditional assistant patrol leader does a map check using his compass. You glance at your altimeter and see that it reads 760 meters, then check the map to see where your path crosses the 760-meter contour line (Figure 1). You have taken 30 seconds to check your position, while cradling your rifle in your left arm and continuing to move along with the rest of the patrol. Meanwhile, your assistant stops, shoots an azimuth to a water tower, converts from magnetic to grid azimuth, figures the back azimuth, finds his protractor and makes a tic mark on the map, uses his bayonet to draw a more-or-less straight line from the tower back across the path, and finally has an estimate of his position. This takes him a good deal more than 30 seconds.

- You are on a rounded hillside and need to check your position. Your compass shows that at your position the hillside falls away on a grid azimuth of 270 degrees. Your altimeter shows that you are at 300 meters. You draw a line on the map down the hillside on this azimuth and note the point where it crosses the 300-meter contour line (Figure 2).

- At a certain point, you want to leave a ridge and proceed at a certain elevation for a few hundred meters to establish a patrol base. Although this is an illusory goal for some novice navigators, with an altimeter, it is easy to do (Figure 3).

- While using a ridgeline to your left as a handrail, you are proceeding on a magnetic azimuth when you run into an obstacle that forces you to detour several hundred meters downhill to your right

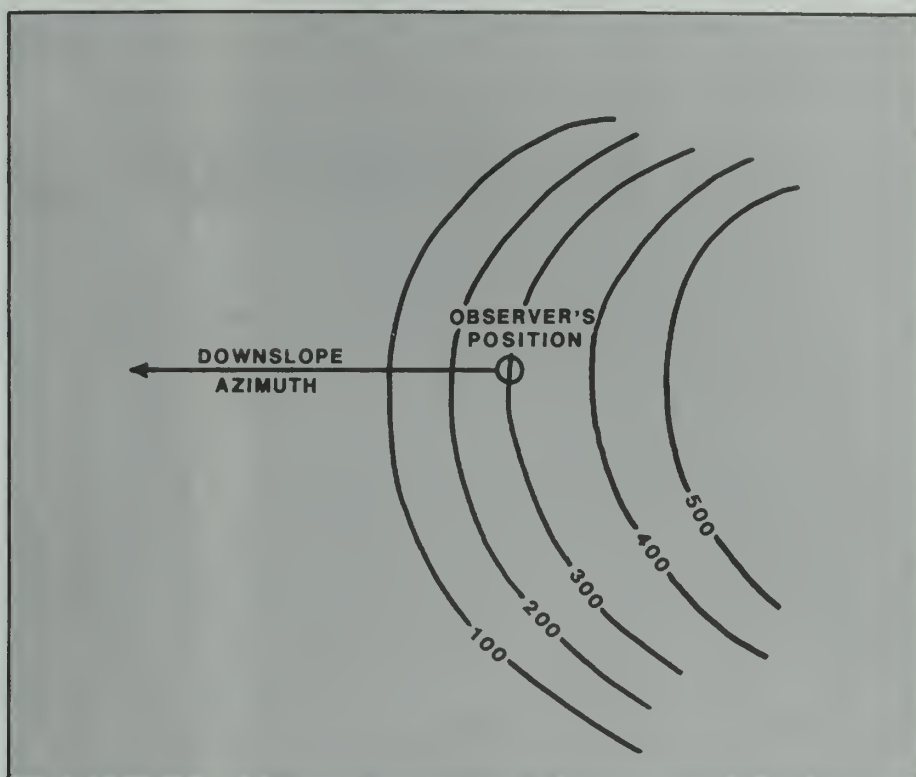


Figure 2

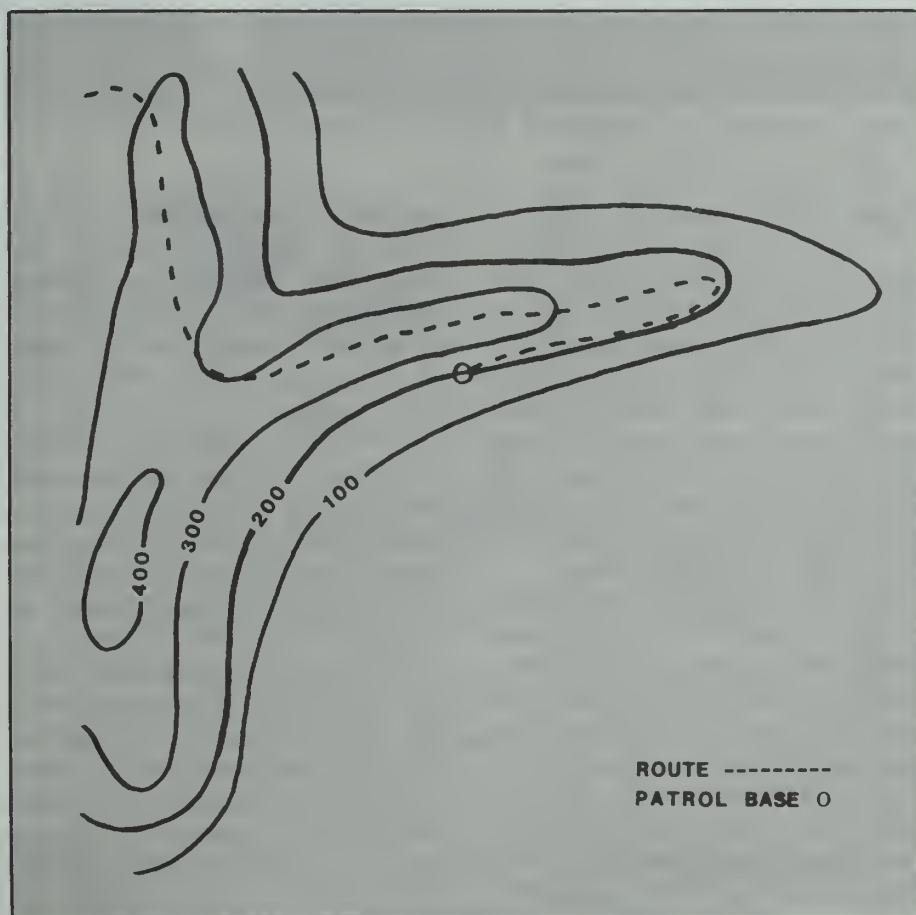


Figure 3

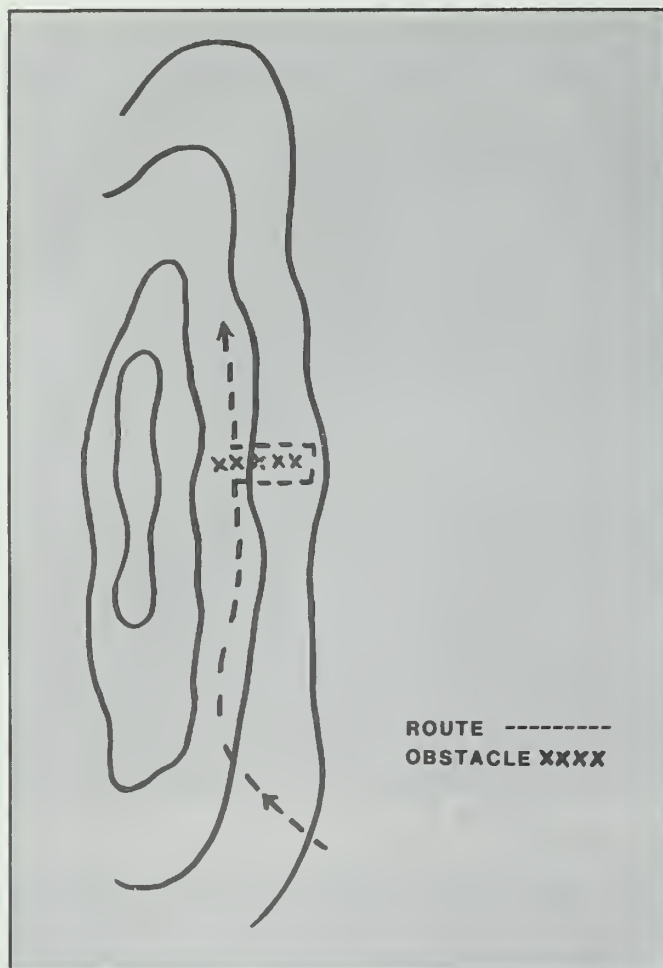


Figure 4

(Figure 4). The terrain is steep, slippery, and thick with mountain laurel so that the downhill leg of your detour renders your pace count a matter of fiction. The obstacle is only about 20 meters deep, then you begin the uphill leg of the detour. Luckily, you had the presence of mind to check your elevation before beginning the detour, so you claw your way back up through the mountain laurel until you reach your original elevation and resume travel along your original course.

- You are crossing a low wooded ridge through a saddle after a 2,000-meter straight shot through a generally featureless forest (Figure 5). The problem is that you cannot see out of the forest to do a resection even from the ridge, and there is a series of saddles along the ridge. Because you are a tactical patrol rather than a survey party, your azimuth tracking has been good but not definitive, and you believe that you could be as much as 200

meters either left or right. The difference in elevation between the saddles is significant, and your altimeter confirms which saddle you have reached, saving you the task of running back and forth along the ridge trying to find which saddle is which.

In addition to navigating, an experienced infantryman also has a personal commitment to accurate weather forecasting. Because an altimeter is also a barometer, the changes in atmospheric pressure give him further information to use in predicting weather changes.

An altimeter does have some limitations. Since changes in atmospheric pressure affect its accuracy, an altimeter needs to be checked at points of known elevation, as does movement from underneath one "vertical column of air" to another. Also, as with the compass, limitations in map accuracy also affect the use of the altimeter.

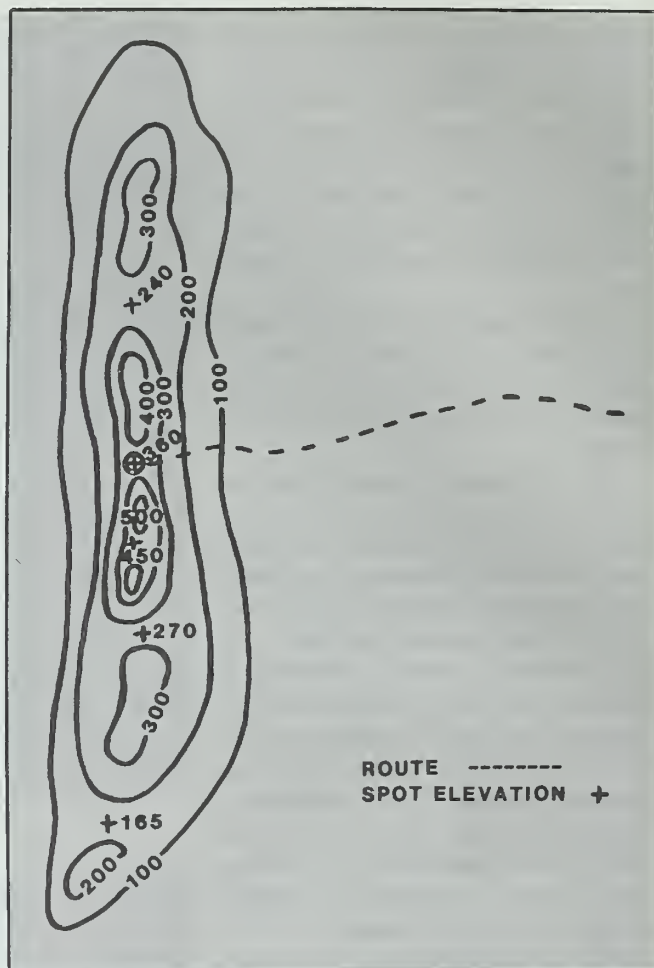


Figure 5

Whether an altimeter will benefit a given unit depends on the terrain over which it operates. Obviously, the more three-dimensional the terrain, the more an altimeter will earn its keep. But soldiers who have even a rudimentary degree of competence with an altimeter find themselves navigating in hilly terrain with map and altimeter almost to the exclusion of the compass. And they do it faster and more accurately.

So next time you look at a map, think whether an altimeter might help you follow your route.

Lieutenant Colonel William Menning commands the 3d Battalion, 172d Infantry (Mountain), Vermont Army National Guard. A 1971 ROTC graduate of Bowdoin College, he has also served with the 82d Airborne Division and the 10th Special Forces Group.

Platoon Rollout Program

LIEUTENANT COLONEL HERBERT F. HARBACK
MAJOR TIMOTHY M. DANIEL

The primary means of evaluating readiness for leaders at the platoon, company, and battalion levels have been ARTEP (Army Readiness, Training, and Evaluation Program) and now MTP (Mission Training Plan) standards. But the cost in both time and resources has been high, perhaps too high.

Too often we have devoted an inordinate amount of manpower and time to spit and polish, painted rocks, and multiple rehearsals that disguised the true readiness picture of a unit. Typically, "ramping up" for one of these events begins with isolating the unit as it prepares itself and ends with a major sigh of relief (or despair) as the load plans, briefing charts, and equipment are stored away and normal operations resumed.

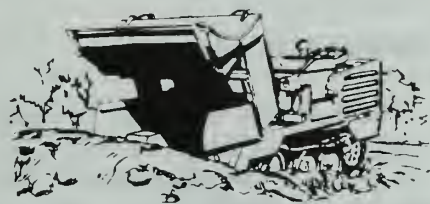
But in terms of a "come as you are" readiness review, how meaningful are the results? We have found that a true go-to-war snapshot is difficult to capture. Critical issues lose their "freshness" to days of fine tuning, by-the-numbers walk-throughs, multiple in-process and after action reviews, and replies by endorsement.

An alternative approach does exist that provides a low cost, quick, and more realistic way of measuring a unit's combat readiness. It centers upon unannounced, platoon level, situational exercises. We call it the Platoon Rollout Program, and it can be used by all platoons.

A platoon rollout is a no-notice readiness check of a platoon's preparedness to deploy and accomplish the missions on its mission essential task list (METL).

The emphasis is on a 20-part system check. We look at the platoon's ability to deploy bag and baggage, accomplish "on the run" missions, and return safely to home station.

There are two phases to the program. Phase I focuses on the organization, accountability, and serviceability of the personnel and equipment within a platoon. It is the basic check of the platoon's effectiveness and survivability. Phase II is the roll-and-perform portion of the program, which emphasizes deployment missions. Simply stated, the Platoon



Rollout Program is the certification of the platoon.

This article describes Phase I, which has proved to be a valuable part of the 14th Combat Engineer Battalion's readiness system for more than a year.

Why platoon level? There are three reasons:

First, the platoon is the largest size force the battalion commander can evaluate at an internally sustained inspection level of one rollout every week. No major planning or logistical resources outside the battalion are required. In short, the program isn't a show stopper. The battalion continues to function normally. To attempt anything larger would do lit-

tle more than stress out both the staff and the companies.

Second, the two-echelon distance rule of evaluating and mentoring is maintained. When a battalion evaluates a company, the distance is too short. When a battalion attempts to reach down and evaluate a squad, the distance is too long.

Third, and most important to us, the program focuses on the workings of the smallest "plan and execute" multiple mission unit. It is the platoon that performs most of the missions, with its officer, NCOs, and soldiers working as a team. A platoon's proficiency can be clearly graded in a series of on-the-move accomplishments recorded throughout the rollout program.

Phase I consists of a no-notice alert issued at 0530 hours, an in-depth inspection of 20 functional areas critical to a platoon's ability to deploy for combat successfully, and a final critique at 1600 hours. This critique is led by the battalion commander and attended by the staff, the platoon's chain of command, the company commander, the executive officer, the first sergeant and the company's operations, motor pool, and supply leaders.

The battalion command group selects the company, and the company commander selects the platoon to be tested. This brings the company into joint program ownership. The only restrictions to the process are that if a platoon has passed an inspection within the last six months it is exempt, and platoons that have not been recent participants have

priority over platoons that have failed and need to be retested. Although it is a platoon that will be evaluated, there is little doubt that the company's support systems will also be tested.

The battalion commander provides the command emphasis that is vital for the overall success of a rollout program while the staff sections inspect the 20 functional areas during the day's evaluation. For example,

- The executive officer administers the program for the battalion commander and maintains the program's memorandum of instruction, statistics, and status board. He identifies problem trends and develops staff actions to correct these problems.

- The command sergeant major notes the platoon's shortcomings and works with the company's first sergeant in monitoring the progress of the platoon sergeant and the squad leaders.

- The S-1 inspects the platoon's POM (preparation for overseas movement) records to determine whether they have been prepared in accordance with rapid deployment standards.

- The S-2 validates the security requirements within the platoon and inspects to see if proper clearances have been obtained.

- The S-3 inspects all of the platoon's assigned NBC equipment, including masks, carriers, alarms, radiacmeters, dosimeters, chargers, and maintenance records.

- The communications section inspects all of the platoon's communication equipment, including vehicle mounted radios, antennas, field telephones and switchboards, and maintenance records. Test meter (PRM-34) checks are accomplished during the evaluation. Communications security (COMSEC) materials are also inspected and accountability is verified on all equipment.

- The S-4 inspects a reliable sample of the platoon's KSOs (kits, sets, and outfits) to make sure they are serviceable and properly marked and to identify any shortage or excess items. He also inspects all basic issue items, all of the platoon's clothing records and load plans, and the serviceability and accountability of tentage.

14TH COMBAT ENGINEER BATTALION PLATOON ROLLOUT PROGRAM					REMARKS
	1ST	2ND	3RD	SPT	COMPANY -
PLT LEADER	2LT ROCK				
AREA/INSPECTION DATE	21 NOV 89				
S1					
POM PACKETS	ES				
S2					
SECURITY CLEARANCES	NI				
S3					
NBC EQUIP	ES				
S4					
PLT/SQD TOOL BOXES	MS				
VEHICLE LOAD PLANS	MS				
VEHICLE OVM	MS				
CLOTHING RECORDS	ES				
HAND RECEIPTS	NI				
TOOL KIT GEN MECH	/				
TENT GP MED/SMALL	MS				
TENT MAINTENANCE	/				
CESO					
COMMUNICATIONS	MS				
BMO					
VEHICLES/TRLS/ENGR	ES				
PIONEER TOOL TRAILERS	MS				
WEAPONS	ES				
SMOKE GENERATORS	/				
OECOM APPARATUS	/				
GENERATORS, ELECTRIC	MS				
CHAIN SAWS	MS				
MINE DETECTORS	ES				
OVERALL RESULTS:					
Total Number of Areas Rated NI: <u>2</u>					
Overall 0 - 1 = ES					
Overall 2 - 3 = MS					
Overall > 3 = NI					
Vehicles/Trls/Engr MS or better?					Yes No
Weapons MS or better?					Yes No
Platoon must have yes responses for above questions.					
Platoon is ES					MS NI
ES - EXCEEDS STANDARDS MS - MEETS STANDARDS NI - NEEDS IMPROVEMENT					

Sample Score Sheet.

- The property book officer inspects a reliable sampling of the platoon's KSOs and driver operator items to validate hand receipts down to the user level.

- The battalion maintenance officer inspects, to the standards of the applicable technical manuals, all of the platoon's assigned vehicles, engineer equipment, generators, and weapons, as well as the maintenance records.

EVALUATION

The functional areas are evaluated using DA Forms 2404 to list the deficiencies and the strong points. These overall ratings fall into three levels of readiness—gold (exceeds standards), black (meets standards), and red (fails to meet standards). Objective measurements are used to determine whether the platoon meets the standards; subjectivity is kept to an absolute minimum.

Scores are recorded on score sheets that explain the standards and on a spreadsheet that allows for easy identification of the problem areas and trends. If a platoon fails to meet the standards in either the vehicle and engineer equipment or weapons categories, it is automatically eliminated from achieving an overall "meets standards" rating.

The company commander is given a copy of all the DA 2404s, and the results

are posted on the platoon rollout masterboard inside the entrance to the battalion headquarters. For all who enter, there is no doubt as to a platoon's readiness. (A sample scoresheet is shown here.)

A combat ready platoon is recognized at a battalion formation at which a special platoon rollout certificate is presented to the platoon.

The program offers many benefits. It not only identifies weak areas within a particular platoon and highlights systemic problems in a company or across the entire battalion, it provides positive tips as well. Great commonsense ideas continue to be developed within the tested platoons, and these ideas are shared by all the platoons. In addition, this battlefield readiness program focuses on accountability and brings frontline leadership involvement back to the forefront of priorities. The platoon leaders are placed in the limelight and made accountable for their actions.

The program allows the battalion commander to have one-on-one discussions with those for whom he is senior rater and also provides him a forum for reemphasizing the battalion's standards and its training focus. In addition, the noncommissioned officers are really brought into the action—all the way through the outbrief in front of the battalion commander. (Problem areas with a platoon's leader-

ship are not easy to hide.)

As for the battalion staff, each member becomes more proficient in his own area of responsibility. He acts to correct functional areas before they become repeated 2404 gigs highlighted in a series of platoon rollouts. In other words, the benefits accrue across the board as the other platoons improve their readiness posture and the battalion staff rapidly matures in subject matter expertise.

Although placing a constant command interest in one specific program has a cost, this one is worth that cost. The

“ramp up” approach of announced inspections has been replaced by a program that demands true “band of excellence” performance based on valid combat readiness standards. The platoon rollout program is a great way to reach and sustain a state of total combat readiness.

In summary, this program offers an affordable method of regularly checking the combat readiness of platoons; its demands are well within a battalion’s capabilities. It provides healthy competition to clear standards. All become winners in the program.

Lieutenant Colonel Herbert F. Harback, now attending the Army War College, formerly commanded the 14th Combat Engineer Battalion (Corps) at Fort Ord. He previously served in various command and staff positions in the 7th Infantry Division (Light) and the 7th Engineer Brigade and was Aide-de-Camp to the commanding general, Western Command.

Major Timothy M. Daniel is the executive officer of the 14th Combat Engineer Battalion (Corps), Fort Ord. His past assignments include duty as a U.S. Army Training and Doctrine Command liaison officer in France and executive officer, 4th Battalion, 4th Training Brigade at Fort Leonard Wood.

SWAP SHOP



TRAINING STANDARD FOR KY-57 VINSON DEVICE

The following is a proposed training standard for using the KY-57 VINSON device with the AN/PRC-77 radio. I wrote it for the training SOP of the 1st Battalion, 327th Infantry, 101st Airborne Division, while I was assigned there. If it exists elsewhere in the Army’s training literature, I have not been able to find it.

TASK: Install and operate the KY-57 VINSON device with the AN/PRC-77 radio.

CONDITIONS: Given the following resources:

- A complete, disassembled AN/PRC-77 with battery.
- A complete, disassembled, keyed KY-57 with radio cable and battery.
- A distant station keyed with the same variable.
- An assigned frequency and call sign.

STANDARDS:

1. Within two minutes, install the equipment in accordance with these standards:

- Install the battery in the AN/PRC-77 and close the latches on the battery box.
- Attach the short whip antenna to the AN/PRC-77.
- Install the battery in the KY-57 and close the latches on the battery box.
- Connect the radio cable between the POWER connection on the radio and the RADIO connection on the KY-57.
- Connect the handset to the AUDIO connection on the KY-57.
- Set the KY-57 fill switch to 1.
- Set the KY-57 mode switch to C.
- Set the radio to the assigned frequency.

2. Within two minutes, pass secure and nonsecure radio traffic in accordance with these standards:

- Turn the function switch of the radio to SQUELCH.
- Turn the function switch of the KY-57 to ON.
- Press the push-to-talk switch once to clear the KY-57 alarm.
- Make a radio check and pass a message to the distant station.
- On order from the distant station to go nonsecure, turn the function switch of the KY-57 to OFF. Do not change any other switch settings or cable connections. Make a radio check and pass a message to the distant station.
- On order from the distant station to return to secure operation, turn the function switch of the KY-57 to ON. Press the push-to-talk switch once to clear the KY-57 alarm. Make a radio check and pass a message to the distant station.

The time standards above will produce a basically proficient soldier. Experienced soldiers can do these tasks much faster. The most common mistake in installing the equipment is to attach the handset to the radio instead of to the KY-57.

To go nonsecure, the mode switch of the KY-57 can be set to P, but there is a risk of pulling the switch off its mounting, as has been documented repeatedly in *PS Magazine*. The preferred method is to turn the KY-57 off as described.

In addition, the basic radio procedures that are covered in many common training references cannot be overlooked.

(Submitted by Captain Thomas J. Martin, Signal Corps, 558th USAAG, in Germany.)

ENLISTED CAREER NOTES



ANCOC DEFERMENT REQUESTS

The Infantry School has noted an increase in the number of noncommissioned officers who request deferment from ANCOC attendance within a week of the class start date because they do not meet height and weight standards. This does not give PERSCOM enough time to send another NCO to the course in his place.

Since it is unlikely that an NCO became overweight in a matter of days, his commander should already have initiated appropriate administrative action, or suspension of favorable personnel action.

ADVANCED NCO COURSE FOR CMF 11

The program of instruction (POI) for the Career Management Field (CMF) 11 Advanced Noncommissioned Officer Course (ANCOC) is now generic. Soldiers in all infantry military occupational specialties—11B, 11C, 11H, and 11M—receive the same instruction.

In an effort to provide relevant instruction that has specific applications to senior NCOs of each of these MOSs, the Infantry School is developing a new tracked ANCOC POI. This POI will also incorporate new guidance outlined in the U.S. Army Training and Doctrine Command's NCO Education System model.

The CMF 11 tracked ANCOC POI will consist of six training annexes: U.S. Army Sergeants Major Academy Common Leader Training, Phase I; CMF 11 common training; and MOS-specific training for 11B, 11C, 11H, and 11M, which will be taught through small group instruction. The goal is to enable a soldier to verify his Skill Level

3 tasks and to certify his ability to lead an infantry platoon successfully (Skill Level 4) in a situational training exercise.

The transition from the current POI to tracked training will take place in January 1991. Small group instruction will also begin in January for certain portions of the course. Others portions will then be added in sequence until all MOS-specific training is presented through this method by the end of Fiscal Year 1991.

The School's point of contact is Captain Boling, AUTOVON 835-7574, commercial (404) 545-7574.

SQTs TO BE PHASED OUT, SDTs PHASED IN

Over the next two years, the familiar skill qualification tests (SQTs) will be phased out and new NCO self-development tests (SDTs) will be phased in.

As currently proposed, the NCO SDTs will be formally administered written tests of current skill-level MOS-specific knowledge, leadership, and training. The Soldier's Manual will be the primary source of SDT questions, and the leadership competencies developed in the NCO leader development study will underpin the development of the leadership portion of each SDT.

Plans call for the new testing system to be developed as three tests for each MOS—one for sergeants, one for staff sergeants, and one for sergeants first class. The tests will be scheduled once a year for Active Army soldiers and once every two years for those in the Reserve Components.

Soldiers will be responsible for preparing for the test on their own time, and the necessary training reference materials must be made available to them.

The following is the timetable for the switchover:

- The SQT for privates, privates first class, and specialists or corporals will be eliminated at the end of the current test cycle—30 November 1990 for the Active Army and 31 August 1991 for the Reserve Components.

- The current SQT for sergeants through sergeants first class for each MOS and grade will be used until the corresponding SDT takes effect.

- The goal is to have the SDT system fully implemented throughout the Active Army on 1 October 1991 and in the Reserve Components on 1 October 1992.

The SDT will be a key element in determining NCO promotions, assignments, school selections, and retentions.

NCO VACANCIES IN ROTC UNITS

Senior combat arms NCOs are needed to fill Reserve Officer Training Corps (ROTC) instructor positions in all four ROTC regions.

Applicants should have served successfully as drill sergeants, platoon sergeants, or first sergeants. Although the Cadet Command prefers that instructors be graduates of the U.S. Army Sergeants Major Academy, this is not mandatory.

All NCOs assigned to ROTC duty must meet the Army's physical fitness and weight standards.

NCOs who are interested should contact their respective career managers at PERSCOM to initiate the application process.



OFFICERS CAREER NOTES



INFANTRY OFFICER DEVELOPMENT COURSES

The following is an update of infantry officer development courses offered at the Infantry School:

Infantry Officer Basic Course (IOBC). IOBC students are now trained under a new program of instruction (POI). The new POI focuses on the execution of collective tasks from the mission training plans (MTPs), and these have resulted in more training in the field and less in the classroom.

New lieutenants coming to a class are mailed a welcome packet that details the entrance certification requirements for the course. This entrance certification consists of 31 selected military qualification standards (MQS) I tasks that the lieutenants learned during their precommissioning training. When the students arrive for IOBC, they have an opportunity to practice these tasks during evening study halls before they are given a hands-on certification on Thursday and Friday of the first week of training.

Under the new POI, the lieutenants go to the field earlier in the course. By the end of the third week, they complete their entrance certification, M16 rifle qualification, land navigation training and testing, and a week-long, squad-level situational training exercise (STX), which includes a live-fire exercise.

Platoon level instruction begins in the sixth week. It includes a platoon-level tactical leadership course (TLC) to complement the highly successful squad TLC. Training for the mechanized infantry STX now includes the Bradley fighting vehicle (BFV) and the simulations network system (SIMNET). The new IOBC POI includes training and testing for the Expert Infantryman's Badge (EIB).

The positive feedback from students and cadre alike clearly indicates that the revised POI trains and challenges lieuten-

ants to become more capable, competent rifle platoon leaders.

Infantry Officer Advanced Course (IOAC). An internal restructuring of the IOAC POI has resulted in several modifications to the course. The purpose of the revision is to train company grade officers who are qualified to serve as company or team commanders and assistant battalion and brigade operations officers.

The philosophy of IOAC is to focus on warfighting across the full spectrum of conflict on the basis of MTPs and the seven battlefield operating systems. The emphasis is on training the officers how to think, not what to think, and on hands-on application in a field environment.

A second practical exercise has been added to the brigade-level tactics instruction, and a brigade-level exercise is included in the command field exercise (CFX). Low intensity conflict training has increased from 14 to 24 hours and includes several case studies, practical exercises, and tactical exercises without troops. The light infantry portion of the CFX is conducted in a low intensity scenario. The use of simulations has increased with the incorporation of SIMNET, the Surface Navigation Orientation Trainer, and the Training Set Forward Observer. Practical exercises throughout the course have a common scenario.

Maintenance instruction has been restructured to include additional areas such as medical; communications; night observation devices; weapons; generators; maintenance diagnostic equipment; vehicles; and nuclear, biological, and chemical.

Infantry Pre-Command Course (IPCC). The IPCC, conducted at Fort Benning, is designed to help senior Army leaders prepare for the command of U.S. Army infantry units. The course focuses on how to train, maintain, and fight. It is open to Active Army and Reserve Component infantry and Special Forces of-

ficers who are commanding infantry or Special Forces battalions, infantry brigades, or Special Forces groups, or who have been designated to assume command of these units. An additional one-week BFV Commanders Course is conducted for officers who are designated to command Bradley units.

The first week of the course teaches maintenance, weapon competency, and training management, and includes a staff ride to the Chickamauga Battlefield site. Instruction during the second and third weeks focuses on tactics and synchronizing the battlefield operating systems and culminates in an offensive SIMNET STX. Brigade command designees actively plan and execute brigade operations and each provides his commander's intent to the battalion commanders.

Finally, tactics instruction focuses on both heavy and light battalion and brigade operations. In addition to these mandatory subjects, the officers in the course also have the option of attending several electives, many of which are tailored to the needs of the individual students. Interspersed through the three-week course are sessions with either the commandant or the assistant commandant of the Infantry School.

YEAR GROUP 88 CVI/RA PROBATIONARY BOARD

The conditional voluntary indefinite (CVI) selection and Regular Army probationary board will convene in February 1991. All first lieutenants with dates of rank from 1 October 1989 to 30 September 1990 will be considered. They must have one year of active Federal commissioned service (AFCS) before the board's convening date.

The board will select only the best qualified officers to remain on active duty. Officers not selected for CVI status or for

continuation in an RA probationary status will be separated from the service. Other than Regular Army (OTRA) officers will automatically be considered for CVI status.

Eligible officers should be aware that the selections will be highly competitive, and they should try to see that their files make the best possible impression. In particular, they should make sure the following are updated before the board meets:

Officer Record Brief (ORB). Key items are military education level, civilian education level, assignment history, and dates of rank.

DA Photo. Before having a photograph taken, an officer should make sure his uniform is well pressed, his trousers are the correct length, and his blouse is fitted properly. He should not wear the infantry cord on his uniform.

Performance Microfiche. The performance microfiche should display all academic evaluations and officer evaluation reports on the top half and all awards and school diplomas on the bottom half. To make additions to his performance microfiche, an officer should take copies of the items to be added to his local personnel service company. To request a copy of his microfiche, he should write to Commander, PERSCOM, ATTN: TAPC-MSR-S, 200 Stovall Street, Alexandria, VA 22332-0400.

Infantry Branch stands ready to help an officer prepare for this board. Any questions should be directed to CPT Bob Pricone, Lieutenants Assignment Officer, at AUTOVON 221-0207 or commercial (703) 325-0207.

CHANGES IN ADDRESS OR DUTY ASSIGNMENT

When you change assignments or move, write to Infantry Branch and send your new address and telephone number. It will save us time in the long run, not only in making assignments, but in keeping your files accurate.

DEFENSE STRATEGY COURSE

The U.S. Army War College offers a six-month correspondence course designed to examine issues that influence national security strategy.

Titled The Defense Strategy Course, it increases an officer's understanding of the national security process and the military and nonmilitary factors that influence it.

Each subcourse requires a written assignment of 1,000 to 1,500 words and approximately six hours of reading per week. Applicants must have credit for command and staff level schooling and must not be enrolled in a senior service college or an MEL 1 program. Fifty officers can be accepted for each class.

Interested officers may request enrollment by writing to Infantry Branch, ATTN: MAJ Roberts.

PROFESSIONAL DEVELOPMENT COURSES IN SPACE OPERATIONS

The following courses support careers in space operation:

Undergraduate Space Training. This course teaches Army officers the skills

they need to perform duties associated with space operations. The training includes the space operations career field; science, technical, and non-technical fundamentals; and applications.

Prerequisites for the course are Secret clearance, rank of captain through colonel, and two semesters of college mathematics, one of which must be calculus.

Joint Space Fundamentals. This course provides fundamental training in space awareness for Army personnel entering non-operator positions in the space field. The scope of training includes the terminology and environment of space, orbital mechanics, background of space exploration and operations, space organizations, space systems acquisition process, operational spacecraft systems, spacecraft systems and design theory, space support operations, surveillance, detection and warning networks, future systems, space operations site activities, joint forces exercises, and security.

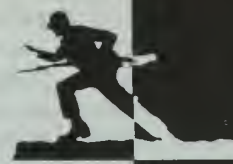
Prerequisites for the course are Secret clearance and rank of captain through colonel.

Senior Joint Space Intelligence Operations. This course provides instruction in the space environment, military employment of space, collection/acquisition, intelligence analysis and production, and space intelligence applications to support operations.

Officers who are interested in attending one of these courses may write to Commander, PERSCOM, ATTN: TAPC-OPB-D (Mrs. McIlwain), 200 Stovall Street, Alexandria, VA 22332-0431.



BOOK REVIEWS



The Korean War is beginning to receive increased attention from our military historians, and we are happy to see this developing trend. It has been ignored for too long. We have recently received several books on that war and call them to your attention:

• **ESCAPING THE TRAP: THE U.S. ARMY X CORPS IN NORTHEAST KOREA, 1950.** By Roy E. Appleman (Texas A&M University Press, 1990. 411 Pages. \$35.00). This is the author's third "unofficial" history of the Korean War. In his previous one, *Disaster in Korea*, which we reviewed in our September-October 1990 issue, he told of the 8th U.S. Army's problems in central and northwest Korea in late November and December 1950. In this volume, he moves east across the Taebaek Mountains to tell of the U.S. X Corps' problems during the same time period. Led by Lieutenant General Edward M. Almond, a Douglas MacArthur favorite, the X Corps had made its initial appearance in the war during the Inchon landing. In northeast Korea, operating as an independent command, the corps narrowly escaped destruction during one of the most poorly conceived and directed military operations in U.S. history. The author tells part of the story in his *East of Chosin* and repeats some of that book here.

In this volume, he devotes most of his chapters to the operations of the U.S. 1st Marine Division west of the Chosin Reservoir, a story that has been told many times before. He adds little that is new, and unfortunately, ignores the operations conducted by other U.S. units. He does advance some interesting conclusions in his last chapter.

In his book about the 8th Army's operations, the author finds fault with the 8th Army's higher command echelons. In this book, he finds little fault with the X Corps commander or his staff. It appears he may have used a different set of standards when judging the two commands. Certainly, neither command had much to be proud of.

• **AMERICA'S TENTH LEGION: X CORPS IN KOREA, 1950.** By Shelby L. Stanton (Presidio Press, 1989. 342 Pages. \$24.95). Although this book contains confusing information about the black units that served in the X Corps in northeast Korea

(page 257 and footnote 18 on page 322), it is far easier to read than the Appleman book. It is not as detailed tactically, but the author—better known for his service in and books about the Vietnam War—does give almost equal treatment to all X Corps units in northeast Korea in late 1950.

Actually, his book covers more than this campaign. He tells the X Corps story from its creation in August 1950 to carry out General Douglas MacArthur's grand scheme of a landing at Inchon through the subsequent campaign to capture Seoul and on to the Corps' ill-fated campaign in northeast Korea. (Appleman, of course, had told his version of the Corps' beginnings and its Inchon-Seoul campaign in the volume he wrote as part of the Army's official Korean War series.)

Throughout his book, Stanton focuses on General Almond and his methods of command. He has a low opinion of Almond's abilities and an opinion far different from Appleman's. At the same time, he believes that General MacArthur must be held equally (if not more) responsible for the debacle that occurred in northeast Korea in late 1950.

• **GUNS AND BUTTER, POWDER AND RICE: U.S. ARMY LOGISTICS IN THE KOREAN WAR.** By James A. Huston (Susquehanna University Press, 1989. 492 Pages. \$65.00). In a previous book—**OUTPOSTS AND ALLIES: U.S. ARMY LOGISTICS IN THE COLD WAR, 1945-1953**—the author, who has written extensively on logistical matters, told of the Army's transition from wartime to the peacetime logistical support of its own forces overseas as well as the support rendered the country's allied powers. He did not discuss the tremendous logistical effort that was required to support the Korean War. In the present volume, he does just that.

He leaves no stone unturned as he tells about the Army's supply requirements in Korea, the procurement and delivery of those supplies to the fighting units, the methods of evacuation and hospitalization of the wounded, and the numerous logistic services that were created to support the war effort.

In light of more recent happenings, this study has considerable relevance to today's Army. In fact, the author offers 16 "principles of logistics" in his concluding chapter

as guidelines for future actions and policies. They hold up remarkably well, and all Infantry leaders would do well to become familiar with them.

• **KOREAN WAR ALMANAC.** By Harry G. Summers, Jr. (Facts on File, 1990. 330 Pages. \$24.95). Using the same three-part format he used for his *Vietnam War Almanac*, which was published in 1985—the setting, a chronology, and the war from A to Z—the author has produced another fine reference work that every infantryman should be familiar with. The bulk of the book is found in the third part (270 pages), which has entries running from "aces" to "zone of the interior." Almost every entry—375 all told—concludes with the author's suggestions for further reading on the particular subject. Most of the entries are also cross-indexed, which helps a reader locate specific bits of information. The book contains more than 100 black-and-white photographs, 10 maps, a selected bibliography (the listed books and articles are primarily those mentioned in the author's suggested readings), and a useful index.

• **THIS IS WAR! A PHOTO-NARRATIVE OF THE KOREAN WAR.** By David Douglas Duncan (Little, Brown, 1990. \$29.95). When this book was originally published in 1951, it received considerable acclaim for its magnificent photographs of men at war. The author, a World War II Marine and an outstanding combat photographer, was in Tokyo in June 1950 on an assignment for LIFE Magazine. He promptly went to Korea and covered the early weeks of the war with both U.S. and South Korean units. When the 1st Marine Brigade arrived in early August 1950, Duncan was in Korea waiting for it. From then until he left Korea in early 1951, he spent a considerable amount of time with the Marines, going with them from the Pusan perimeter to Inchon-Seoul and finally to the Chosin Reservoir.

The book is divided into three major parts with each having a brief introduction followed by pages of black-and-white photographs. There are no captions on the photographs; none are needed. No finer tribute has ever been paid to the U.S. fighting man.

We have also recently received from the Combat Studies Institute at Fort Leavenworth

two more of its excellent studies:

- **THE PETSAMO-KIRKENES OPERATION: SOVIET BREAKTHROUGH AND PURSUIT IN THE ARCTIC, OCTOBER 1944.** By Major James F. Gebhardt (Leavenworth Papers Number 17, 1990. USGPO S/N 008-020-01201-7. 182 Pages. \$8.50, Softbound). The author now serves as a military analyst in the Army's Soviet Army Studies Office. He uses original Soviet and German source material to provide the first detailed English-language account of this major Soviet World War II offensive, an operation the Soviet armed forces still use as the basis for their study of warfare in arctic regions.

- **KEY TO THE SINAI: THE BATTLES FOR ABU AGEILA IN THE 1956 AND 1967 ARAB-ISRAELI WARS.** By George W. Gawrych (Research Survey Number 7, 1990. USGPO S/N 008-020-01200-9. 147 Pages. \$8.00, Softbound). The author, who has been with the Institute since 1984, visited both Israel and Egypt in 1986. Using sources from both countries, he discusses the two battles of Abu Ageila and uses them to explain why he believes the Israelis were so successful in the 1967 war. Although his primary focus is on the Israeli effort, he also pays considerable attention to the actions of the Egyptian Army.

When talking about lessons learned, we recommend most highly this three-volume set of books written by Anthony H. Cordesman and Abraham R. Wagner:

- **THE LESSONS OF MODERN WAR, VOLUME I: THE ARAB-ISRAELI CONFLICTS, 1973-1989** (Westview Press, 1990. 394 Pages. \$47.50).

- **THE LESSONS OF MODERN WAR, VOLUME II: THE IRAN-IRAQ CONFLICT** (Westview Press, 1990. 647 Pages. \$54.95).

- **THE LESSONS OF MODERN WAR, VOLUME III: THE AFGHAN AND FALKLANDS CONFLICTS** (Westview Press, 1990. 471 Pages. \$49.95).

The authors of these books were well qualified to perform the task they set for themselves: To take a comprehensive look at five major conflicts with which we are all familiar. Although they designed each volume to stand alone, their analyses are standardized as much as possible. Thus, each volume is divided into sections that discuss the forces involved, the history of the particular conflict under discussion, the key aspects of the operational art of war, and the effects of the major types of forces and weapons. The authors' primary focus is on the military events and the lessons learned from them.

Although the authors' conclusions in the second volume have been overtaken by recent

events in the Middle East, all three books contain a wealth of useful information for infantrymen, and they should make it a point to read and study each one.

Here are several other publications we want you to know about:

- **IKE 1890-1990: A PICTORIAL HISTORY.** By Douglas Kinnard. Photo Editor, Wade Tyree (Brassey's (US), 1990. 180 Pages. \$29.95). A glowing tribute to Dwight D. Eisenhower in celebration of the 100th anniversary of his birth. The book contains more than 300 black-and-white photographs, many never before published, and is the most comprehensive photographic biography of this soldier, statesman, and president.

- **WINNING IN THE DESERT: CALL NEWSLETTER NUMBER 90-7, SPECIAL EDITION. AUGUST 1990.** (Center for Army Lessons Learned (CALL), Combined Arms Training Activity, Fort Leavenworth. 26 Pages, Softbound). This is a compilation of observations from the NTC and Exercise BRIGHT STAR and from a pamphlet titled *Saudi Arabia Lessons Learned* (Army Materiel Command, 1983), and from information extracted from the CALL data base. It offers insights on desert operations and provides a solid basis for future planning and training.

- **ENGINEER EXPERIENCES APPLICABLE TO DESERT SHIELD** (U.S. Army Engineer Studies Center, Casey Building, Fort Belvoir, VA 22060-5583. 1990. 110 Pages, Softbound). This publication, free on request to the Center, covers a variety of subjects such as coping with sand, heat, and terrain; construction; operations and maintenance; mobility and counter-mobility; camouflage; and the like.

And, finally, we have received from Hammond Incorporated (Maplewood, NJ 07040-1396) the first two in its new Military Series Maps. They are titled the **VIETNAM CONFLICT** and the **MIDDLE EAST CRISIS**. Both are outstanding. The first map, which costs \$3.95, includes a number of informative items all on one sheet—a full location index; a chronology that covers the years from 1954 to 1974 and details all of the major battles; and a detailed inset of Saigon and vicinity. The second map, which sells for \$5.95, features all on one sheet, a detailed political map, a physical map, and an annotated historical map. It is ideal for understanding today's Middle East crisis. The maps may be purchased directly from Hammond or from local bookstores and map shops.

Here are a number of our longer reviews: **UNITED STATES MARINES IN VIETNAM: HIGH MOBILITY AND STAND-**

DOWN, 1969. By Charles R. Smith (Headquarters U.S. Marine Corps, History and Museum Division, 1988. USGPO S/N 008-055-000175-1. 416 Pages. \$21.00). Reviewed by Doctor Mike Fisher.

By 1969, much had changed for the United States Marines then serving in I Corps, the northernmost military area in the Republic of South Vietnam. The enthusiasm and optimism the 9th Marine Regiment had brought ashore in its initial, unopposed landing at DaNang in 1965 had diminished in the smoke and fire of endless firefights and battles, patrols and operations.

The early idealism had also been tempered by the erosion of support from a nation divided over the moral and political implications of the war itself. By 1969 national resolve had eroded dramatically.

In this, the sixth volume of the official Marine history of its costliest war, the respected Marine Corps historian Charles Smith—a former combat infantryman with the Army's 101st Airborne Division in Vietnam during 1968 and 1969—chronicles this transition year, as Marine units began to leave Vietnam and the new policy of Vietnamization went into effect.

He concentrates his attention on the efforts of the 1st and 3d Marine Divisions as they continued to harass and attack the enemy forces in the north and to pacify the areas surrounding DaNang and other urban centers in the I Corps areas.

New and improved battle techniques followed lessons so clearly learned during the earlier fighting. Increased mobility and greater firepower keynoted operations that struck at the enemy's lines of communications. And with an increased helicopter lift capability, the Marines found themselves on the offensive rather than defending terrain as they had in 1968.

This book should definitely attract the attention of those veterans who walked the ridges and waded the streams of I Corps two decades past. It will enable them to share the big picture of what happened to them, their own vision probably obscured by monsoon rains and paddy dikes.

Military buffs will find a treasure chest of illustrations and maps that lay out the struggle, while historians can follow official records and oral interviews to the root sources of the problems of strategic, tactical, and doctrinal consequences that contributed to both the success and the failure of U.S. units fighting in Vietnam.

FORGING THE ALLIANCE: NATO,

1945-1950. By Don Cook (Arbor House, 1989. 306 Pages. \$22.95).

NATO IN THE 1990s. Edited by Stanley R. Sloan (Pergamon-Brassey's, 1989. 347 Pages). Both books reviewed by Captain Stephen A. Johnson, United States Army.

The original intent behind the establishment of and the future of NATO have become major topics of debate in recent months. These books handle both subjects exceptionally well and are must reading for both the military professional and the national policy maker.

The first, by Don Cook, deals with the immediate post-World War II events and negotiations that led to the signing of the North Atlantic Treaty in 1949. Cook reviews the critical months in 1946 when the three basic declarations of the Cold War emerged—Stalin's "no peaceful international order is possible" speech; Kennan's long telegram; and Churchill's Iron Curtain speech.

He deals heavily with the personalities involved and with how their (and their nations') strengths and weaknesses affected the process that led to the formation of the alliance. His is a particularly timely book because it reminds us of why NATO was formed and what it has accomplished during the past 40 years.

The second book is the result of two years of work by the North Atlantic Assembly Committee on NATO in the 1990s, a committee that consisted of leading politicians and experts from the various NATO nations. It includes a summary of the committee's conclusions and recommendations, its report on NATO, and various separate analyses of the major issues that face the alliance today.

The committee believes a new transatlantic political bargain must be reached to reflect today's economic, political, and defense realities. Overall, the book is an excellent analysis of NATO's possible future.

WHERE THE ORANGE BLOOMS: ONE MAN'S WAR AND ESCAPE IN VIETNAM. By Thomas Taylor (McGraw-Hill, 1989. 387 Pages. \$19.95). Reviewed by Doctor Joe P. Dunn, Converse College.

This captivating book makes a number of significant contributions. Thomas Taylor, a son of the late General Maxwell Taylor, commanded a company in the 1st Brigade, 101st Airborne Division in which Ben Cai Lam, a Vietnamese native, served as an interpreter. Taylor integrates his own experiences and an account of the brigade's campaigns into Cai's memoirs.

More importantly, the book provides a unique glimpse into the life of an ARVN sol-

dier during and after the war. Cai joined the brigade in July 1965 and stayed with it until it went home in 1971. He then returned to the South Vietnamese Army.

After the war, Cai, like millions of his compatriots, suffered five barbaric years in the "re-education camps." His saga of the fall of his country, the communist gulag, underground life as a hunted outlaw, the horrors of escape attempts, and his arrival in the United States is one of the most graphic accounts in print.

Taylor's interspersing of Cai's own words (in italics) into his own spirited narrative is quite powerful. This is a fascinating and valuable addition to the literature that allows us to look at Vietnam through a different set of eyes. I recommend it highly.

THE UNION ARMY, 1861-1865, ORGANIZATION AND OPERATIONS: VOLUME I, THE EASTERN THEATER. By Frank J. Welcher (Indiana University Press, 1989. 1,065 Pages. \$75.00). Reviewed by Major Don Rightmyer, United States Air Force.

This is one of the most outstanding reference books that has ever been published on the subject of the Union Army during the Civil War period. It, along with an accompanying second volume yet to be published, was 15 years in the making. A better work for the purpose is unlikely to appear in the near future.

The author is a professor emeritus of Indiana and Purdue Universities. He opens his work with a summary of the Union Army's high command structure during the 1850s and 1860s, and then explains the responsibilities of each staff agency. This is followed by a brief description of the four military divisions of the Army: the Atlantic, the James, the Potomac, and the Middle.

He uses the next 200 pages to give a detailed explanation of the Army's 26 geographic departments, which existed (some for varying lengths of time) during the war itself. Under each department, the author lists the commanders, the major subordinate units assigned to each, and the significant events that occurred in them.

In the other sections he discusses the 13 different armies that fought in the eastern theater, the numerous army corps that served in those armies, and, finally, the battles and campaigns in the east. The latter section, some 500 pages in length, is virtually a book in itself.

Despite the lack of an index or footnote documentation, this is a superb historical work

and well worth the price.

THE HALDER WAR DIARY, 1939-1942. Edited and abridged by Charles Burdick and Hans-Adolph Jacobsen (Presidio Press, 1988. 716 Pages. \$39.00). Reviewed by Doctor Charles E. White, Command Historian, 21st TAACOM.

As Chief of the German General Staff during the early years of World War II, Franz Halder was in a unique position to observe Germany at war. The original version of his diary was a two-volume work (published in English in 1977) that covered the period from 1938 to 1942. This edited and abridged version of the original covers only the war years, 1939-1942.

The reader should not be disappointed. The editors have provided some very helpful insights, since Halder was not writing a history or an explanation of the war, and they have abridged much of Halder's technical language. As Charles Burdick says in the introduction, "The outcome is more a notebook than a real diary."

Using the outmoded *Gabelsberger* form of shorthand, Halder kept careful (at times cryptic) notes during his entire tenure as chief of staff. He divides his attention between the minutiae of warfare and military decision-making at the highest levels in Nazi Germany. Packed in this volume is the German view of the war. The diary ends with Halder's farewell to the General Staff on 24 September 1942, after Hitler had fired him.

The most interesting aspects of this book are Halder's reflections on his staff colleagues, the major figures in the German government, and, of course, Adolf Hitler. Here is the Third Reich at the apex of its power. Although Halder is often non-committal in his evaluations, whenever he does comment on someone, it is a thunderclap. All serious students of World War II should read this edition.

GENERAL GEORGE WRIGHT: GUARDIAN OF THE PACIFIC COAST. By Carl P. Schlicke (University of Oklahoma Press, 1988. 418 Pages. \$29.95). Reviewed by Captain Rick Ugino, United States Army National Guard.

The author of this lively book is a retired surgeon who wrote it as a labor of love. His subject, George Wright, a Vermont native and a West Point graduate, took part in two wars and numerous Indian skirmishes before he was sent to California to try to keep the west coast in the Union during the Civil War. The author characterizes Wright's ser-

vice as efficient and says he "never considered doing any less than his duty."

Some of the best reading in the book is in the author's descriptions of frontier living at such posts as Fort Leavenworth and the specifics of the Seminole War in Florida, which Wright took part in for four arduous years. He also led the charge of his regiment, the 8th Infantry, at Churubusco during the war with Mexico. He died in a shipwreck in 1865.

The book is recommended for the serious historian of the period and for the infantryman who wants to know more about life in the small army on the early western frontier. It is interesting and most readable.

DIARY OF A DISASTER: BRITISH AID TO GREECE, 1941. By Robin Higham (University Press of Kentucky, 1986. 269 Pages). Reviewed by Major Harold E. Raugh, Jr., United States Army.

The British expedition to Greece in 1941 was, at the time of its conception and execution, one of World War II's most controversial campaigns. It remains controversial to this day.

The author, a professor of history at Kansas State University, has performed a great service by dispelling much of the mystery and myth that has shrouded this event. By masterfully researching diplomatic sources, British as well as Greek, and military records, he has been able to synthesize a multitude of information into an interesting and lively chronicle. His study is the first to cover this tragic episode so completely.

The author records the important and often overlooked role the RAF played throughout the campaign; he personally visited the areas mentioned in his study to get a feel for the tremendous logistical difficulties the British encountered; and he does not ignore the important role the weather played. Overall, while the campaign appeared to be a defeat for the British, in reality the British withdrew in accordance with their ULTRA intelligence reports. Because they stood by their ally, the British kept their honor untarnished—and the United States Congress passed Lend-Lease.

A few minor complaints can be made—typographical errors, some incomplete or inaccurate endnotes, and the like—but the book

remains the most complete and authoritative study yet written of this particular campaign.

RECENT AND RECOMMENDED

SOLDIERS OF THE ENGLISH CIVIL WAR (1): INFANTRY. Text by Keith Roberts. Color plates by Angus McBride. Elite Series 25. Osprey, 1989. 69 Pages, Softbound.

TANK WAR, CENTRAL FRONT: NATO VERSUS WARSAW PACT. Text by Steven J. Zaloga. Color plates by Steven J. Zaloga and Simon McCouaig. Elite Series 26. Osprey, 1989. 64 Pages, Softbound.

GERMAN MILITARY POLICE UNITS, 1939-45. Text by Gordon Williamson. Color plates by Ron Volstad. Men-at-Arms Series 213. Osprey, 1989. 48 Pages, Softbound.

THE VENETIAN EMPIRE, 1200-1670. Text by David Nicolle. Color plates by Christopher Rothero. Men-at-Arms Series 210. Osprey, 1989. 48 Pages, Softbound.

WOLFE'S ARMY. Text by Robin May. Color plates by G.A. Embleton. A reprint of the 1974 edition. Men-at-Arms Series 48. Osprey, 1989. 48 Pages, Softbound.

THE AMERICAN INDIAN WARS, 1860-1890. Text by Philip Katcher. Color plates by G.A. Embleton. A reprint of the 1977 edition. Men-at-Arms Series 63. Osprey, 1989. 48 Pages, Softbound.

DEFENSE ELECTRONICS AND COMPUTING. Number 3. Editorial supplement to the September 1989 issue of INTERNATIONAL DEFENSE REVIEW. Jane's, 1989. Softbound.

THE AIR CAMPAIGN: PLANNING FOR COMBAT. By John A. Warden III. Future Warfare Series, Volume III. Pergamon-Brassey's, 1989. 161 Pages. \$18.91.

TERRORISM: THE NEWEST FACE OF WARFARE. By Donald J. Hanle. Brassey's, 1989. 254 Pages. \$32.00.

EXPLOSIVES, PROPELLANTS, AND PYROTECHNICS. By A. Bailey and S.G. Murray. Land Warfare: Brassey's New Battlefield Weapons Systems and Technology Series, Volume 2. Brassey's 1989. 187 Pages. \$15.95, Softbound.

MAKING PEOPLE DISAPPEAR: A CHRONICLE OF PHOTOGRAPHIC DECEPTION. By Alain Jaubert. Originally published in French in 1986. Pergamon-Brassey's, 1989. 190 Pages. \$27.95, Softbound.

A LONELY KIND OF WAR: FORWARD AIR CONTROLLER, VIETNAM. By Marshall Harrison. Presidio, 1989. 285 Pages. \$18.95.

TAE KWON DO: THE ULTIMATE REFERENCE GUIDE TO THE WORLD'S MOST POPULAR MARTIAL ART. By Yeon Hee Park, Yeon Hwan Park, and Jon Gerrard. Facts on File, 1989. 224 Pages. \$24.95, Hardcover.

THE FACTS ON FILE DICTIONARY OF

MILITARY SCIENCE. By Jay Shafritz, Todd Shafritz, and David Robertson. Facts on File, 1989. 480 Pages. \$35.00.

THE U.S. ARMY WAR GUIDE TO BATTLES OF CHANCELLORSVILLE AND FREDERICKSBURG. By Dr. Jay Luvaas and COL Harold W. Nelson. A reprint of the 1988 hardcover edition. Harper & Row, 1989. 361 Pages. \$8.95, Softbound.

STRATEGIC IMPASSE: OFFENSE, DEFENSE, AND DETERRENCE THEORY AND PRACTICE. By Stephen J. Cimbala. Greenwood, 1989. 287 Pages. \$45.00.

INTO THE VALLEY: A SKIRMISH OF THE MARINES. By John Hersey. Originally published in different form in 1943. Schocken Books, 1989. 111 Pages. \$15.95.

CHANGING AN ARMY: AN ORAL HISTORY OF GENERAL WILLIAM E. DEPUY, U.S. ARMY RETIRED. By Romie L. Brownlee and William J. Mullen III. USGPO S/N 008-029-00173-0. CMH Pub 70-23, 1988. 209 Pages. \$14.00, Softbound.

A TREASURY OF MILITARY MORALE. Edited by James E. Myers. Lincoln: London Press (818 S. Dirksen Parkway, Springfield, IL 62703), 1990. 348 Pages. \$10.95.

BEYOND SURVIVAL. By Gerald Coffee. Putnam's, 1990. 287 Pages. \$18.95.

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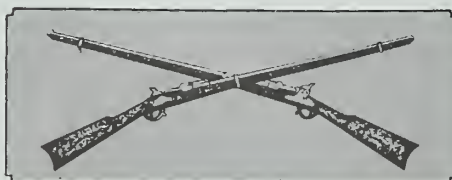
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From The Editor

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